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AN EVALUATION of the TREATMENT MODALITY and MANAGEMENT of ACUTE and CHRONIC LOW BACK PAIN INDIVIDUALS in RURAL SOUTHEAST KANSAS

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EVALUATION OF THE TREATMENT MODALITY AND MANAGEMENT OF
OPIOID THERAPY IN ACUTE AND CHRONIC LOW BACK PAIN INDIVIDUALS
IN RURAL SOUTHEAST KANSAS

A DNP Scholarly Project Submitted to the Graduate School
in Partial Fulfillment of the Requirements
for the Degree of
Doctor of Nursing Practice

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Pittsburg, Kansas

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OPIOID THERAPY IN ACUTE AND CHRONIC LOW BACK PAIN INDIVIDUALS
IN RURAL SOUTHEAST

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AN EVALUATION OF THE TREATMENT MODALITY AND MANAGEMENT OF OPIOID THERAPY IN ACUTE AND CHRONIC LOW BACK PAIN INDIVIDUALS IN RURAL SOUTHEAST

An Abstract of the Scholarly Project by
Michele R. Carey

Roughly 25 million American adults experience pain, and 23 million others withstand severe assiduous pain that is disabling and results in decrease work productivity, loss of quality of life and diminished health (Meldrum, 2016). Treatment of pain, including chronic and acute low back pain includes a multidisciplinary approach merging cognitive-behavioral, psychological and physical therapies, respite, pain coping management and self-hypnosis (Meldrum, 2016). In 1999, pharmaceutical companies reassured physicians that opioid pain relievers were not addictive, and the prescribing rate began to increase (NIH, 2017).

The quantity of opioids being prescribed has quadrupled since 1999 which has led to an increase in diversion and misuse of these medications, thereby increasing the overdose rate from opioids. This abuse and addiction to opioids has become a crisis of epidemic proportions in the US with deaths from overdose now a leading cause of injury death (APSE issue Brief, 2015). The most addictive of these medications such as hydrocodone and oxycodone, are routinely used for a variety of conditions, yet guidelines for the prescribing of opioids suggest that alternate treatment may be equally effective but are not being used. This opioid epidemic appears multi-factorial including incorrect prescribing, illicit and licit drug resources and patient non-adherence.

Opioid abuse is a significant preventable public health threat challenging our country. This educational scholarly project looks at the prescribing practices of

providers in a set of clinics in Southeast Kansas. The purpose of this study was to discover if providers within these clinics followed the recommended CDC guidelines. The guidelines include a trial of non-pharmacological, non-opioid therapy to manage acute and chronic back pain before initiating opioid therapy, whether they obtained a controlled substance agreement, checked the prescription drug monitoring program and obtained a urine drug screen prior to prescribing opioids. The information obtained from the clinics was then compared to other regions in Southeast Kansas.

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CHAPTER I

Introduction

Roughly 25 million American adults experience pain, and 23 million others withstand severe assiduous pain that is disabling and results in decreased work productivity, loss of quality of life and diminished health (Meldrum, 2016). Treatment of pain including acute and chronic back pain should incorporate a multidisciplinary approach merging cognitive-behavioral, psychological and physical therapies, respite, pain coping management and self-hypnosis (Meldrum, 2016). The primary cause of accidental deaths in the United States is drug overdose with opioid addiction as the driving force (ASAM,2016). Four out of five individuals that use drugs, often begin with opioid pain relievers and then turn to the use of heroin due to cost and ease of buying. (ASMA, 2016).

Description of Clinical Problem

In 1999, pharmaceutical companies reassured physicians that opioid pain relievers for the use of acute or chronic pain, were not addictive, and the prescribing rate began to increase (NIH, 2017). The quantity of opioids being prescribed has quadrupled since 1999 which has led to an increase in diversion and misuse of these medications. In addition, this has increased the overdose rate

from opioids, yet the amount of pain that Americans have reported has not increased (NSDUH, 2014).

This abuse and addiction to opioids has become a crisis of epidemic proportions in the US with deaths from overdose now a leading cause of injury death (APSE issue Brief, 2015), creating a critical and perplexing public health problem. The most addictive of these medications are routinely used for a variety of conditions, yet guidelines for the prescribing of opioids suggest that alternate treatment may be equally effective. Alternate therapies are not routinely used: non-pharmacological approaches with non-steroidal anti-inflammatories and acetaminophen coupled with physical therapy and self-care instructions. A fundamental concern with prescription opioid associated morbidity and mortality is the significant number of individuals that have reported use of nonmedical prescription drugs, without a prescription or use to obtain a reaction or experience the drug causes (APSE Issue Brief, 2015). This opioid epidemic appears multifactorial including incorrect prescribing, illicit and licit drug resources and patient non-adherence.

Significance

Opioids such as morphine, methadone, oxycodone and hydrocodone are the most widespread drugs. Opioid abuse is a significant preventable public health threat challenging our country. To date, the death toll has exceeded more than 600,000, with 180,000 more predicted by 2020 (Gostin et al., 2017).

According to the American Society of Addiction Medicine (ASAM, 2016), 20.5 million US residents twelve years of age or more had a substance abuse malady in

2015, two million were dependent on prescription pain relievers, 591,000 engaged in substance abuse that included heroin, and they predict that more than 20% of persons that abuse heroin will develop an addiction to opioids (AMSA, 2016). In response to this situation, President Trump has declared a national emergency on the drug addiction and opioid crisis. The national emergency affirmation acknowledges community health powers, activates resources and authorizes advanced tactics to reduce a public health crisis that is accelerating rapidly (Gostin et al., 2017).

Cultivating a change in how opioids are ordered with clinical practice guidelines safe-guards clients with more secure and successful chronic pain treatment and minimizes the risk of opioid use disorder (CDC, 2017). Improving public health prevention nation-wide would aid in a reduction of death and morbidity and be cost effective as well (Gostin et al., 2017). The CDC recommends nonpharmacological and nonopioid pharmacologic treatment as the desired therapy for individuals with unceasing pain.

Constant pain afflicts more than 10% of US adults and millions are treated with prescription opioids, making opioids the most ordered prescription pharmaceuticals; they are also highly addictive (Gostin et al., 2017). Mortality related to opioids has risen more than 150% from 21,088 in 2010 to 33,091 in 2015, reducing the life expectancy of users (Gostin et al., 2017). Teen overdose deaths went from 649 in 2014 to 772 in 2015; an increase of 19%. The rampant use of opioids costs the United States more than \$90 billion in 2016 (Gostin et al.,

2017). Patients in the US use almost 100% of all hydrocodone and more than 80% of all oxycodone worldwide (Manchikanti, 2013).

Close to 250 million opioid prescriptions for pain were written by providers in 2013, and one out of four patients on prolonged opioid treatment in primary care were struggling with opioid use disorder (CDC). During the data collection, the CDC found 20,000 deaths in 2015 related to prescription opioids equaling about 62 deaths per day. The National Center for Health Statistics (NCHS, 2015) revealed the sales of opioid painkillers quadrupled from 1999-2010, and deaths related to opioids had also tripled from 1999-2012. Data collected in 2015 revealed that \$250,000 adolescents were nonmedical users of pain relievers, and nearly half were addicted to pain relievers (ASMA, 2016).

The state of Kansas is comparable to the national numbers with KDHE reporting a threefold increase in drug hospitalization from 1999-2009, with deaths caused by opioid analgesics rising threefold from 1999-2010 (KDHE, 2014). The age-adjusted rate for acute drug poisoning among Kansas residents was slightly lower than the CDC's Healthy People 2020 target at 10.6 deaths per 100,000 compared to 11.3 per 100,000 (KDHE, 2014). Southeast Kansas rose above all states with the highest age-adjusted rate of death from acute drug poisoning in the state, with 13.4 deaths per 100,00 between 2009-2013, while Southwest Kansas having the lowest age-adjusted rate of 5.7 deaths per 100,00 (KDHE, 2014). Men had an age-adjusted rate of 11.6 per 100,000 compared with women at 9.6 per 100,000, while white non-Hispanics held the highest age adjusted death rate at 11.7 per 100,000 (KDHE, 2014).

Opioids, such as morphine, methadone, oxycodone and hydrocodone were the most widespread drug, with 41.1% of drug related deaths, followed by Pyschostimulants, which include methamphetamine were the second most prevalent, at 7.5% of deaths between 2009-2013. Because a significant number of drug deaths were the result of multiple drugs, known and unknown, or at least alcohol and one drug, meaning that any drug death could be due to more than one drug as a contributor, these numbers do not equal 100% (KDHE, 2014).

APRNs are among the healthcare professionals that are in a position of changing these numbers by thwarting improper access. To ensure sound appropriate prescribing, APRNs must consider using these drugs for legitimate purposes and curtail dangerous practices that are contributing to this growing crisis. To effectively incorporate safe practice, actions must focus on both the prescribers and the identification of high-risk patients while increasing the monitoring of prescription drugs and the sharing of data among providers. Clinicians face daunting tasks in assessing pain levels in clients and choosing appropriate nonpharmacologic and pharmacologic treatments. Once the decision to begin opioid therapy has been made, appropriate monitoring of therapy for abuse prevention and diversion can be equally intimidating (Carter, 2017).

Description of Clinical Issue

Pain can affect every individual and it is challenging yet unique for each person and afflicts the lives of more than 100 million Americans (Institute of Medicine, 2011). Knowledge and educational limitations of health care professionals are equally challenging when treating pain. The Institute of

Medicine (IOM) 2011 reports that only half of primary care providers (PCPs) feel somewhat prepared while 27% report feeling somewhat unprepared or underprepared to treat individuals with chronic pain.

Prior to 2016, when the CDC sent out 12 suggestions for opioid use in chronic pain, there were relatively few guidelines to which providers could refer. These guidelines include: use of nonpharmacologic therapy and nonopioid pharmacologic therapy as first line treatment to include ibuprofen, Tylenol, ice, heat, physical therapy or a combination of each, education provided to patients regarding goal expectation and opioid use-risks versus benefit, if an opioid was prescribed, was it before or after conservative management, choice of opioid and dose provided, use of a controlled substance agreement, use of prescription drug monitoring programs (PMDP) and periodic drug screenings to verify compliance and deter abuse and misuse.

The CDC's recommended guidelines mirrored guidelines made by the American Society of Interventional Pain Physicians Guidelines (ASIPP, 2017) related to the safe, responsible, and effective prescription of opioids for unrelenting non-cancer pain. Both the CDC recommendations and the guidelines put out by ASIPP state that nonpharmacological and nonopioid pharmacologic therapy are the desired choice for prolonged pain. The CDC recommendations are voluntary and do not replace the clinical decision-making discussion between the provider and the patient according to the situation, functional status and quality of life. The ASIPP guidelines are recommendations on the actions that may or may not be taken in various situations when it comes to chronic opioid

therapy and different groups of people. The recommendations are aimed at family practice, internal medicine, nurse practitioners and physician assistants, who are among the top four prescribers of opioids (Laxmaiah et al., 2017).

The US financial burden for more than 100 million Americans suffering from pain is estimated to be more than \$500 billion per year, and this number does not include children suffering with pain and those in long-term care facilities. Back pain ranks in the top five most common complaints for all provider visits. Approximately, one fourth of adults expressed having back “pain” a minimum of one day in the last ninety days (Chou et al., 2007). Many occurrences are self-limiting, but one third of people have persistent back pain one year after an initial event, and one out of five persons indicate significant activity limitations (Chou et al., 2007). Many individuals seeking medical care for back pain are unable to link it to a specific cause or abnormality.

Impairment in daily functions of life related to chronic pain is a leading cause of outpatient visits, specifically, chronic back pain (Keller, 2012). Individuals that suffer agonizing injuries often develop longstanding chronic pain (Keller, 2012). Some people will develop chronic pain syndrome with is a constellation of symptoms including, sleep disturbance, emotional lability, depression, isolation from other, diminished functional capacity and character changes (Keller, 2012). Chronic pain unrelated to malignancy is one of the most common and incapacitating medical conditions that is both contentious and convoluted to control (Volkow, 2016). Low back pain is concomitant with elevated levels of disability and has a one-year prevalent episode of 38% in the

overall population (Azevado, 2015). Acute low back pain is pain lasting less than six weeks duration and becomes chronic low back pain when it exceeds three months duration.

Complex treatments, diverse approaches and available resources that can be utilized in determining acceptable practice prove to be challenging for providers. Each case is evaluated on its merit and circumstances. Clinicians need to consider both the benefit and the risk of opioid therapy for the patient, identifying outcome expectations with the client's current level of function. The benefit of receiving opioid therapy should be weighed against the potential risk, including sedation, tolerance, dependence and confusion. Evidence supports common safety practices and indicators provide guidance in the assessment, intervention and safe prescribing of opioids. Providers cannot be responsible for patient actions once they leave the office, but it is the providers' obligation to make opioid use as safe as possible. Standards of care (SOC) have been implemented and endorsed to protect the patient and the public from opioid misuse and the provider is responsible for adhering to these standards (Hudspeth, 2016).

Screening tools are useful in identifying persons at high risk for abuse or medication misuse. These tools are aimed at identifying individuals who currently use substances such as tobacco or alcohol, individuals who use other people's medications, have mental or mood disorders, those experiencing problems with employment or in their family circle and individuals with a pertinent childhood history of abuse and neglect or convicted of any related

crimes such as driving under the influence. There are multiple screening tools such as Opioid Risk Assessment (ORT), and the National Institute on Drug Abuse (NIDA), and SOAPP-R (Screener and Opioid Assessment for patients with Pain-revised), and these tools are available as apps that can be downloaded to a smart phone for ease of use.

It is important to remember that risk assessment tools are not wholly consistent or accurate in their prediction of opioid misuse or abuse. Risk evaluation and mitigation strategies (REMS) have been approved by the Food and Drug Administration (FDA) but have not been evaluated to be effective (Dowell et al., 2016). A favorably sensitive determination for persons at risk for medication misuse was found in a single question related to how often the person has used alcohol, tobacco, illegal drugs and prescription drugs for nonmedical reasons. Providers must also remember that high-risk individuals can still receive opioid therapy with appropriate management and follow up.

Providers have an honorable and legal duty to care for patients including management of their pain, but pain is subjective and creates a sticky predicament for providers (Reidl, 2014). There is great debate among government entities on the appropriate treatment of pain with the use of opioids and the identification of those at high risk for use and abuse. Known factors contributing to abuse and use include, poverty, unemployment, work injuries, and a lack of education (Laxmaiah et al., 2017). Highly trained NPs or PAs will know the best treatment for pain, how to initiate therapy, and monitor such therapy, when additional testing is needed for interventions and when to refer to an appropriate specialist

(Carter, 2017), and yet a lack of education and preparation of providers when evaluating and monitoring a patient on opioid therapy coupled with known risk factors of abuse and use among patients contributes to the ever-growing opioid epidemic. To fully understand the scope of the opioid epidemic in rural Southeast Kansas, an evaluation will be completed of how opioids are prescribed and whether the appropriate and current suggested recommendations and guidelines are being used by clinicians in rural Southeast Kansas.

Specific Aim/Purpose

The goal of this scholarly project was to discern the quantity of opioid prescription written for acute and chronic back pain in rural Southeast Kansas among multiple clinics. In addition, this project attempted to discover whether CDC guidelines had been followed such as the use of UDS and PMDP, and if appropriate monitoring of the patient was done in these clinics in Southeast Kansas. This project also noted if clinicians attempted nonpharmacological and nonopioid therapy to manage acute and chronic back pain before they initiated opioid therapy. The data gathered was then compared to how Southeast Kansas ranks in the number of opioids prescribed compared to other regions in Southeast Kansas.

Theoretical Framework

There are two theoretical frameworks that were used in this scholarly project, Patricia Benner's from Novice to Expert Model and Nola J. Pender's Health Promotion Model. Knowledge is gained through education, training and

adequate resources that prepare clinicians to make evidenced based decisions to ensure the best treatment for their clients. This mimics Benner's (1984) model, From Novice to Expert, where clinicians develop skills and understanding over time based on a strong foundation in education and personal experiences.

Clinicians can gather knowledge via research and clinical practices. Nurses must initially learn what to look for and how to intervene in a situation, but as they move along through their career and consistently gather knowledge, they move from a novice to an expert in nursing. Nurses returning to school for further education follow the Novice to Expert plan as well, though they are already practicing nurses. These skills are gained through education in a formal setting, education in practice, research and clinical practice throughout one's career.

Nora J. Pender's 1982 Health Promotion Model is also appropriate for this scholarly project as she considers how surroundings influence the choices individuals make and how people search for ways to achieve their dream, but obstacles often hinder or entice individuals with items that appear promising. Clinicians can improve the health of individuals by being role models and through education with health promotion. Southeast Kansas has many individuals living in poverty, and if surroundings influence choices and opioid use is higher among those in poverty areas, then becoming stewards of the community through health promotion will allow clinicians not only learning experiences but the opportunity to be role models and improve the life of individuals before chronic illness or poor choices take control.

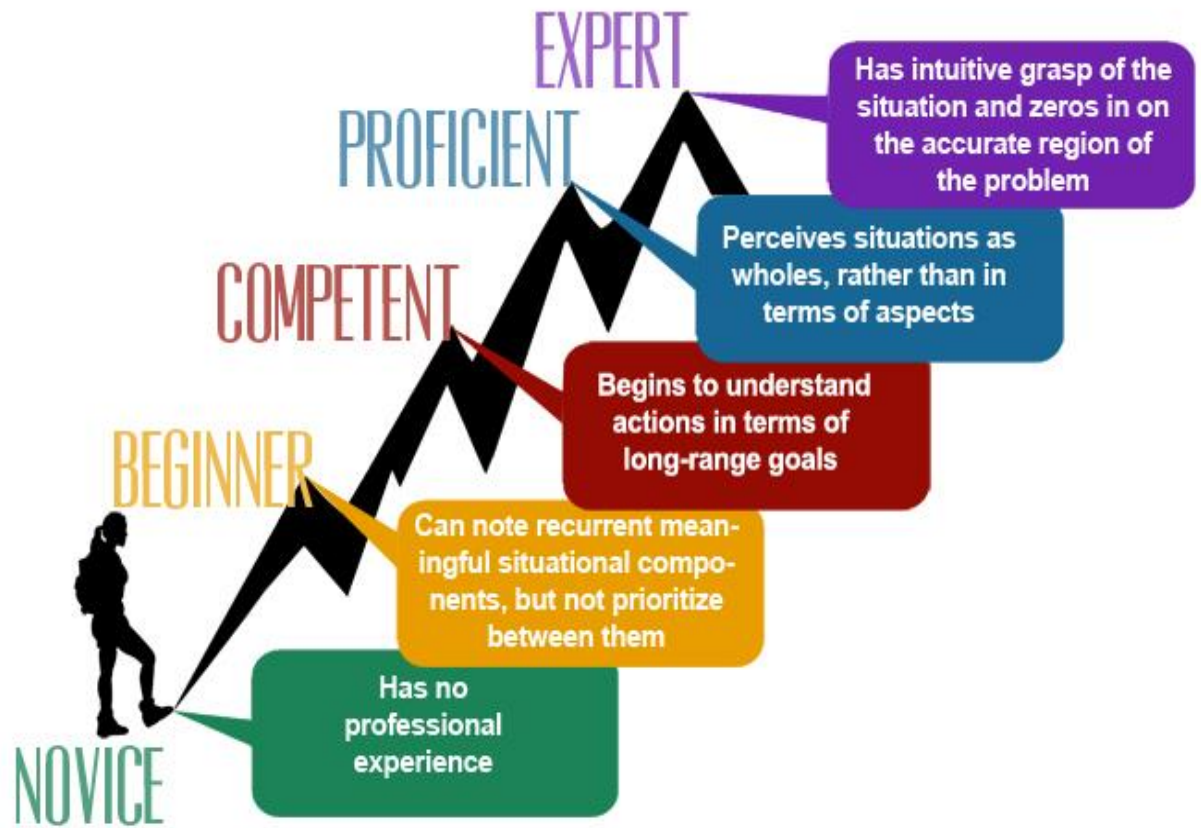
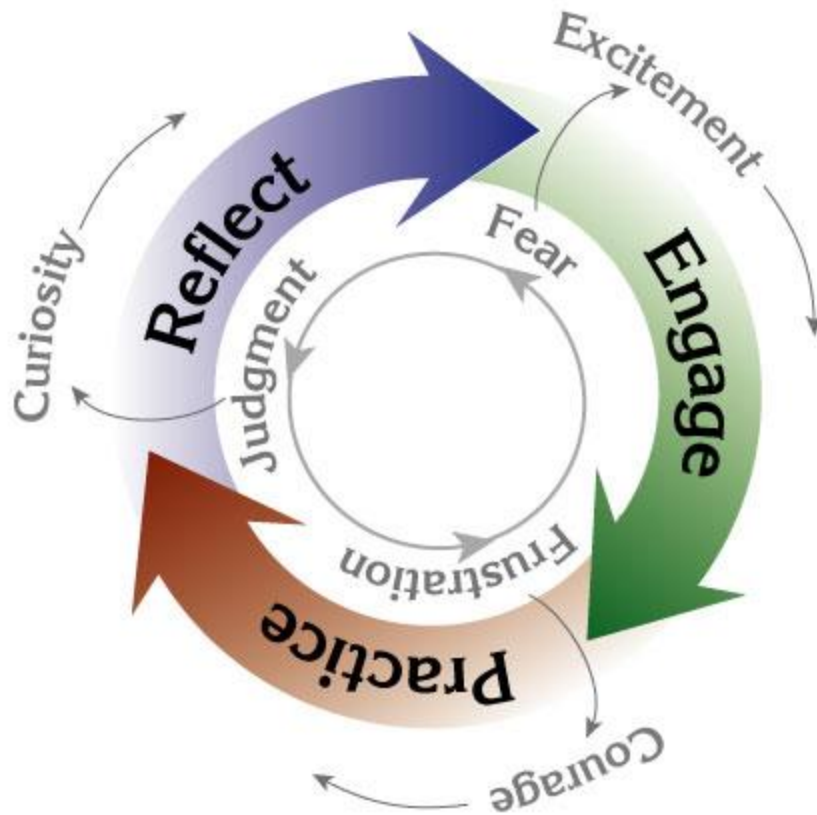


Figure 1. Patricia Benner's from Novice to Expert Model Figure

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6seconds.org

Figure 2. Nola Pender's Health Promotion Model

Research Questions

- 1). Are clinicians in selected clinics in rural Southeast Kansas prescribing opioids using the current CDC recommendations and guidelines?
- 2). How does Southeast Kansas compare to other regions in Kansas regarding the number of opioids written by providers?

Definition of Key Terms

The key terms for the project include:

Chronic pain- In this project, chronic pain refers to pain lasting longer than twelve weeks (Chou et al., 2007).

Acute back pain refers to pain lasting less than twelve weeks (Hallegraef et al., 2013).

Opiate medications are powerful prescription medications that are used to reduce pain (UpToDate, 2017).

Opioid Analgesics include: Hydrocodone, Oxycodone, Fentanyl and Morphine Sulfate which bind opioid central nervous system (CNS) opioid receptors leading to inhibition of ascending pathways altering an individual's perception and response to pain (UpToDate, 2017).

A "Nurse Practitioner is defined as a certified registered nurse with advanced nursing credentials displayed through formal education and training" (American Medical Association [AMA], 2009, p.8).

Physicians Assistants are defined as restricted licensed primary care providers (AMA, 2009).

Addiction is a lingering brain disease with frequent relapses characterized by habitual pursuit of drugs and use, regardless of dangerous outcomes (Volkow, 2014).

Tolerance is an adaptive consequence of an exposure to a drug which leads to a need for increased doses to obtain adequate pain control (Leonardi et al., 2015).

Logic Model

The components of the logic model for this project included inputs, activities, outputs and outcomes as outlined in Table I. Using a descriptive retrospective chart review analysis of data, prescribing practices and treatment modalities of physicians, nurse practitioners and physician assistants revealed how different data outputs can improve outcomes by revealing safe prescribing practices, improved provider collaboration, identifying persons at high risk for abuse potential using CDC guidelines, use of a PDMP and random UDS which will lead to improving patient safety.

Table 1. Logic Model

Inputs	Activities	Outputs	Outcomes (Impact)		
			Short Term	Medium Term	Long Term
Physicians	Descriptive Retrospective Chart Review	Use of CDC guidelines	Safe Prescribing	Use of CDC guidelines	Patient Safety
Nurse Practitioners	Data Analysis	Obstacles to use of guidelines			
Physician Assistants	Prescribing Practices	Initiators of guidelines	Improved Provider Collaboration	Use of PMDP Use of random UDS	
	Treatment Modalities	Provider Collaboration	Identification for High risk Abuse Potential	Improved Patient Education	
		Data Comparison among Providers			
		Comparison across Kansas		Improved Provider Education	

Summary

Chronic pain is a public health issue and a medical condition that denotes physical, cognitive and emotional consequences (Leonardi, 2015). It is a multifactorial concern that often goes under-treated or untreated and is the number one presenting complaint in various practice settings from the emergency room to primary care (Carter, 2017). Opioids can safely be used for unrelenting

pain management, yet the rate of addiction and overuse of opioids has resulted in an epidemic in the United States with ramifications that can last a lifetime.

NPs and PAs are capable of pain management and must include a multidisciplinary, multimodal approach but they need additional formal training in both management of pain and pain medications coupled with clear guidelines to follow during the initiation of and monitoring of pain management. While many states require education for pain management, it will take more than two hours of continuing medical education to understand both how to treat and the risks of the medications that are being used (Raj, 2017).

Treatment of chronic pain is vital both clinically, and ethically and opioids have a place as a treatment modality however, pain is a complex disorder and requires a team approach. NPs and PAs must feel comfortable with appropriate training and guidelines along with risk assessment tools for the safe prescribing of opioids in pain management. Provider practices can be influenced by where they practice, and their knowledge and comfort with pain management modalities which include opioid therapy, can allow providers to deliver safe and effective care.

Opioid use, abuse, and diversion has reached epidemic proportions in the US. To attempt to correct this issue, this researcher is hoping to find out if providers are contributing to the problem. Pain is the fifth vital sign and providers are expected to adequately treat a patient's pain (Hudspeth, 2011); however, provider anxiety when prescribing opioids may inadvertently contribute to the crisis. Non-pharmacological treatment modalities have been noted to be

successful in the treatment of acute and chronic pain, yet more and more individuals and prescribers are relying on opioids which exacerbates the problem.

This researcher hoped to determine the current prescribing practices of acute and chronic back pain patients by providers in rural Southeast Kansas. This researcher hoped to elicit if providers had prescribed opioids by following the recommended CDC guidelines using PMDPs and urine drug screening. The use of this data will improve provider compliance with the use of evidence-based opioid prescribing and monitoring for patient abuse and diversion. Increasing education of the patient on the pathophysiology of pain and appropriate therapies may begin to decrease the opioid consumption in the US, reducing the economic burden that it currently holds.

CHAPTER II

Introduction Literature Review

A review of the literature was performed utilizing the following search criteria: opioid abuse and misuse, therapy for chronic low back pain, pain management with the use of opiates, best practice evidence in pain management, tools for treating back pain, the addict's point of view, prescribing practices among providers and education in treatment of back pain, the public opinion on opioid use, substance abuse, pain management and provider knowledge on pain management. The review of literature will include proposals from medical professionals in diverse specialties to determine collective thoughts of professionals involved in the treatment of pain. This literature will incorporate recommendations from the CDC, the FDA and the American Society of International Pain Physicians (ASIPP) concerning appropriate opioid prescribing practices, short and long acting opioid use and when it is appropriate to continue long term opioid therapy.

This literature review suggests that there is a lack of knowledge and training in various pain treatment areas and how best to treat non-malignant cancer pain with opioids (Harris et al., 2008). As chronic pain (CP) is the most common reason people seek medical care (Leonardi et al., 2015), nurse

practitioners (NPs) and physician assistants (PAs) are asked to manage chronic pain in the primary setting yet face formidable challenges in selecting appropriate nonpharmacological and pharmacologic therapies, when a patient needs an opioid and then how to provide ongoing monitoring to curtail abuse and diversion (Carter, M., 2017).

Musculoskeletal disorders are the most frequent cause of disability in developed countries and account for about 3% of the cost of the gross domestic product in the United States (Watson & Shay, 2010). Low back pain is a familiar complaint and exemplifies a substantial burden in patient suffering and costs (Watson & Shay, 2010). As musculoskeletal disorders increase as individuals age, it is logical to presume that individuals with chronic disability will also increase. Low back pain is prevalent in about 44-49% of the population with a lifetime prevalence between 51-84% (Watson & Shay, 2010).

Research suggests primary care providers receive inadequate education on how to appropriately manage acute and chronic back pain. This includes the appropriate use of non-pharmacologic treatment modalities, non-opioid prescriptions and safe prescribing tools, as well as monitoring opioid use (Dowling & Denisco 2012). Opioid prescribing among ambulatory care settings doubled from 8% in 1980 to 16% in 2000 (Manchikanti & Hirsch, 2013). Lack of instruction and preparation in treating pain and opioid prescribing has been found to increase the stress level and fatigue among primary care providers and they are concerned with the misuse of opioids. Research also noted four categories in prescribing errors when opioids are used including: insufficient assessment for

secure and successful opioid use, failure to supervise compliance, inappropriate choice of opioid and lack of regard for comorbidities (Manchikanti & Hirsch, 2013).

Pathophysiology and Epidemiology of Pain

Improper selection of opioids suggests a lack of knowledge on pain itself. Chronic pain is a complex interaction of nociceptive, neuropathic or mixed pathogenic systems (Leonardi et al., 2015). Nociceptive pain stems from stimulation of the primary afferent nociceptors in the peripheral nervous system in response to some assault on the system. This response is sent to the central nervous system which allows the body to recognize damage. Endogenous opiates with serotonin and noradrenaline and others incorporates the perception of pain and thus becomes a balance of stimulation and inhibition that depends on emotional and behavioral influences (Leonardi et al., 2015). Neuropathic pain is derived from injured tissue that withstands a primary injury or dysfunction in the central nervous system. The pain may occur centrally or peripherally, but syndromes will differ depending on involved fibers. Neuropathic pain is a common ailment in primary care and can be disabling (Leonardi et al., 2015).

Data has revealed that chronic noncancer patients are not an identical group and often present with biological, psychological and social issues convoluted by depression, anxiety, somatoform disorders and substance abuse (Leonardi et al 2015). An accurate diagnosis of chronic pain means clinicians need to characterize the nature of the discomfort and the pathology of pain, which are multifarious often with mechanisms that overlap (Leonardi et al., 2015).

Addiction is a recurring, relapsing brain disorder categorized by drug seeking and use regardless of harmful outcomes. Addiction results from interactions between biological and environmental factors, which increases the concerns regarding safety, efficacy and appropriate use of opioids in unrelenting noncancer pain clients (Leonardi et al., 2015).

Pain Management Education

The Association of American Medical Colleges created a survey in 2001 demonstrating that less than 4% of medical institutions mandate pain management instruction (Bair, 2011). Most patients suffering from acute and chronic pain are treated by their primary care provider due to a lack of pain specialists (Bair, 2011). Clinical practice guidelines (CPG) already developed focus on monitoring, early detection and treatment of problems and conservative dosing and improved patient treatment, yet they are not consistently utilized (Trafton et al., 2010). Training of pain management is often fragmented and learned on the job due to the lack of formal education and training (Bair, 2011).

Chronic pain management is complicated even for pain specialists and is compounded by an individual's comorbidities. Providers that do not specialize in pain management receive little training in pain and opioid management in the primary care setting, where pain is only a piece of serious conditions that need addressed during a visit (Trafton et al., 2010). Clinical mentoring for nurse practitioners often does not include hours dedicated to pain management and orthopedic specialties (Hudspeth, 2011), which leads to a lack of knowledge and skills in accurate diagnosing and treatment of patients with musculoskeletal pain

(Bair, 2011). An appropriate approach to pain management is through matching the analgesics mechanism of action to the underlying pathophysiology of the pain (Raffa & Pergolizzi, 2014) providing clinicians with relevant knowledge of pain and offering clinical expertise to raise assurance in managing unceasing pain (Bair, 2011).

Chronic Pain, Opioids and National Surveys

Opioids are generally used for treatment of chronic pain often at doses that surpass current recommended guideline doses (Gomes et al., 2011). Addiction results from the inherent reinforcing properties of opioids and psychological, social and physiologic factors of individuals (Fishbain et al., 2008). Unrelenting pain that drives individuals to seek care is not different among states; however, prescribing rates for opioids vary significantly across states (NPA, 2012). In the states with the highest prescribing rates, health care providers penned almost triple the opioid prescriptions per person than providers in lower prescribing states with lower socioeconomic status and higher levels of unemployment as contributing factors (NPA, 2012). Economic depression may contribute to the increase in prescription, sales, abuse, overdose and death of opioids (Galewitz, 2017). Where a clinician practices often influences how they prescribe and may be influenced by their knowledge and comfort with pain management and understanding of treatment modalities which include opioid therapy (NPA, 2012).

Among individuals that abuse opioids, many get them free from family and friends, and those at a higher risk for overdose obtain them differently than those who use opioids less frequently. Of those that use opioids, 27% of individuals use

their own prescription, 26% obtain them from friends and family for free, 23% buy them from friends and family and 15% obtain them from drug dealers. The individuals that have a higher risk for overdose are four times more likely to purchase from a drug dealer or stranger (CDC, 2017).

Current Recommendations

Unremitting pain is a biopsychosocial disorder that compels integrated, multimodal and interdisciplinary management, all elements of which should be evidence-based (Choo, 2017). The treatment for pain classes such as neuropathic pain and non-neuropathic pain vary, and clinicians need to differentiate between nociceptive and neuropathic pain to appropriately treat the patient (Stones et al., 2016).

Efforts to initiate an integrated multidisciplinary approach to treatment is often met with resistance with patients refusing to participate in physical therapy (Choo, 2017). Patients suffering from pain will have difficulty with simple life tasks such as washing dishes, using the bathroom and engaging in hobbies, which then affects not just social and physical well-being but psychological as well (Choo, 2017). Finding strategies that provide patient autonomy and normalcy may improve their control over their pain.

The American Academy of Pain Medicine (AAPM) has acknowledged that safe pain treatment amid primary care providers is ranked as one of the top five concerns (AAPM, 2012). Treating chronic pain is complex due to the perception of pain and its trajectory. Providers should begin looking at pain with an improved sense of understanding of the patients need, with the key principle

being that doing nothing is better than causing harm with medications (Knaggs & Stannard, 2017).

Opioid therapy has been increasing since the 1990's for unrelenting pain, yet recent research has questioned the safety and efficacy of opioid use for unrelenting pain not related to cancer, due to the increased risk of tolerance, addiction and hyperalgesia (NIDA, 2016). Opioid abuse and dependence are chronic, extensive multifactorial disorders that lead to detrimental effects on individuals and society. A basic understanding of the mechanism behind the disorder can aid in identification of management strategies to prevent and treat opioid related disorders (Mistry et al., 2014).

The Joint Commission on Accreditation of Healthcare Organizations developed new measures to advance pain control, fostering the use of pain scales and tools, using pain as the fifth vital sign and raising opioid prescribing and pharmaceutical opioid accessibility for nonmedical use and overdose (Paulozzi, 2011).

Providers report inadequate training when managing chronic pain, especially in individuals with aberrant behavior (Calcaterra et al., 2013). Controlling pain is a central issue in the US with healthcare providers and policy makers attempting to abate undesirable effects of increased access to prescription opioids while still providing adequate pain control (Brady et al., 2016).

Legislative Policy

Between 1999-2010, an analysis of spine care in the US, showed low use of nonpharmacologic therapies in clinical practice. Commonly prescribed high-

risk medications such as opioids promotes concern due to the known issues with safety and effectiveness (Krein et al., 2016). Drug addiction is a social problem with individuals feeling the need to take regular doses of substances to feel good (Beneitez & Gil-Alegre, 2017). Slashing the drug supply will not stop this trend; however, it is preferred that people be able to confront their lives and learn coping mechanisms during stressful situations without drugs, and therefore education is so important when it comes to healthcare (Beneitez & Gil-Alegre, 2017).

The National Health Institute is an influential agency that is leading the charge to discover ways to thwart the misuse of opioids, handle opioid use disorders and control pain. This initiative is working toward a partnership with pharmaceutical corporations and educational research agencies to cultivate secure, effective and non-addictive strategies for pain management. The initiative also looks for inventive ways to treat opioid use disorders, improve deterrence and reversal interventions to save lives while providing recovery support. Refining the way in which providers prescribe opioids through clinical practice guidelines will guarantee clients have access to safer, more useful treatment of unrelenting pain while lowering the risk of opioid use disorder (CDC, 2017), and clinicians are committed to using evidence-based practice to identify, interpret and apply findings to individuals. Improving public health prevention nationwide would aid in a reduction of death and morbidity and be cost effective (Gostin et al., 2017). The CDC recommends nonpharmacological and nonopioid pharmacologic treatment as the desired treatment for individuals with chronic pain.

Drugs will exist continually, and the United States Federal Drug Administration (USFDA) program is educating providers on appropriate opioid prescribing practices, how to identify patients suited for opioid therapy, and how to properly educate individuals regarding use of opioids, storage and disposal (Beneitez & Gil-Alegre., 2017). In 2010, the CDC noted that opioids were responsible for more than 16,000 deaths out of 40,00 drug overdose deaths and as a result, the FDA published the “Guidance for Industry Assessment of Abuse Potential Drugs” explicitly looking at the study and improvement of new pharmaceutical technologies with the goal of reducing drug abuse (Beneitez & Gil-Alegre, 2017).

In 2016, the CDC came out with a set of guidelines to aid providers in their decision making regarding opioid therapy. The CDC’s guidelines have three main focuses: initiation of or the continuance of opioid therapy for prolonged pain; choice of opiate, dosage, length of use, follow up, discontinuation and assessment of risk; and addressing harms of opioid use.

The foundation for development of these guidelines was the result of provider trepidations about opioid drug misuse, overseeing patients with protracted pain, apprehension regarding dependence and reports of inadequate education in prescribing opioids (CDC, 2016). Clinician knowledge, prescribing practice changes and improved patient health benefit can be achieved with the use of clinical practice guidelines concentrating on prescribing opioids (CDC, 2016).

The CDC is not the only professional organization to release new guidelines. The American Pain Society/American Academy of Pain Medicine,

2009. Washington Agency Medical Directors Group 2015, and the US Department of Veterans Affairs/Department of Defense 2010 have also created guidelines. Each of the guidelines impart mutual components including dose titration and risk mitigation strategies, yet there is significant variance in specific recommendations which may not reflect evidence-based material (CDC, 2016). Evidence based guidelines can enhance care and improve patient safety while decreasing misuse of opioids (CDC, 2016).

Opioids are an important piece of acute pain treatment for moderate to severe pain, but hazards for chronic use do exist (Streltzer et al., 2008). The American Academy of Addiction Psychiatry came out with a set of guidelines when using opioids in unrelenting nonmalignant pain for those who believe in their efficacy, hoping to maximize benefits and minimize harm (Streltzer et al., 2008). Among their recommendations they note that some state medical licensing boards believe the customary practice when using opioids is a reduction in symptoms and improvement in functioning, observing that high dose opioids have not been proven to be effective, and when used long term they create and increase in hyperalgesia or pain sensitivity (Streltzer et al., 2008).

A two to four weeks trial of opiates for the treatment of acute pain has been noted among providers (Tavernise, 2016), and research has noted that there is some benefit in pain management if opiates are used less than twelve weeks (Dowell et al., 2016). Current recommended guidelines are to treat pain with ibuprofen and aspirin as a first line modality with opiates being used for three days but no longer than one week (Tavernise, 2016). Dowell, Haegerich, &

Chou, (2016), found limited research that opioids are beneficial for long term treatment of pain. Habitual opioid use disorder, death and overdose was implied when opioids were given for acute back pain (Dowell et al., 2016).

Public concern and awareness regarding the negative impact of prescription abuse and misuse has grown. There has been little research done on how provider's views related to the epidemic influences the efforts to address the issue, while public health policy makers and researchers study intervention tactics (Wright et al., 2016).

Simple strategies outlined by state policymakers include the electronic physician order entry system and the prescription drug monitoring systems (PDMP) which document and monitor the use of schedule II-V narcotics (Wright et al., 2016). Although these systems are primarily for tracking prescribing practices and note potential provider shopping, many of the systems are quite new in their development (Wright et al., 2016). Regardless of the system used, research needs to look at how providers view the drug epidemic and how these beliefs influence their practice (Wright et al., 2016).

There have been mixed feelings among providers regarding the strategies, as some providers feel that these governmental regulations intrude their practice. PMDPs often offer beneficial information back to prescribers to facilitate improvement in the quality of their day to day clinical decision making, but they do expand governmental oversight into clinical practices (Wright et al., 2016).

Patient's Satisfaction and Current Clinical Recommendation

Cautionary use of opioids for pain therapy becomes a challenge as pain decreases. Withdrawal by the patient may be uncomfortable; and, the prescribing provider maybe inexperienced in the titration of the opioid, which may lead to continued use of opioids even if benefits are minimal and risks are high for continued use (Streltzer et al., 2009). One guideline by the American Academy of Addiction Psychiatry allows the provider and patient the use of opioids if they believe them to be effective but encourages the thought of how opioids can harm some and how diversion may occur (Streltzer et al., 2009). Abuse, misuse, opioid overdose and death have spurred the CDC, National Center for Injury Prevention and Control (NCIPC), National Institute for Drug Abuse (NIDA) and the Substance Abuse and Mental Health Services Administration (SAMHSA) to develop current recommendations after reviewing common practice guidelines (Dowell et al 2016).

Among the eight guidelines the common practices include a complete physical exam, thorough pain record, medical history, family and social history, urine drug screening and a discussion about the appropriate treatment course. The treatment course should include a discussion regarding use of opiates at the lowest dose once alternative treatments have been unsuccessful; the implementation of a controlled substance agreement, and a method to monitor treatment and pain progress with a plan for safe, effective discontinuation of opioids (Dowell et al., 2016).

Another consideration is the prevalence in which opioids are being

diverted, with many of the diverted opioids from prescriptions that were written by providers (Longo, 2016). Regardless of the clinical guidelines currently in place, they are guidelines and do not replace provider judgement. A provider's lack of faith in their ability to safely prescribe opioids, the inability to detect abuse or dependence and the ability to have an acceptable discussion regarding these issues may cloud a provider's judgement (Longo, 2016). Individuals have a right to have their pain managed in an appropriate manner which may include the use of opioids; however, patient rights should be weighed against the danger to the individual and society (Cheatle, 2015).

Research observed a higher incidence of opiate use long term in patients that experienced low back pain resulting from injury and those who underwent spinal surgery (Dowell et al., 2016). Individuals who received more than five prescriptions for opioids early on for low back pain treatment with up to 140 morphine milligram equivalents (MME) daily had a higher odds ratio for undesirable effects including misuse, overdose and mortality (Dowell et al., 2016).

There is no straightforward solution to the epidemic, but research does show that advocating for use of opioids at the lowest dose for the briefest amount of time, increasing the educational training on both prescribing and the difference in tolerance vs dependence, and a better understanding of acute and chronic pain would aid providers in safer, more successful pain management and reduce the risk of opioid abuse and diversion (Longo, 2016).

Financial and Political Implications

A leading cause of outpatient visits and functional impairment among individuals is unrelenting pain with healthcare cost exceeding \$70 billion each year (Keller et al., 2012). Cost to employers, state and federal family assistance organizations and attempts to minimize or curtail the use of opiates result in social issues such as failure to adequately perform job functions at work, school and home (Dowell et al., 2016). Most guidelines for chronic pain indicate active physical interventions such as exercise including manual therapy, core strengthening, coordination and endurance and are evidence-based recommendations (Azevedo et al., 2015). While detrimental effects of opioid use have been observed, there is limited evidence related to outcomes using clinical guidelines (Dowell et al., 2016).

Summary

Opioid use disorders have raised concerns about the relationship of long-term opioid therapy and challenged dangerous patterns and impairment (Dowell et al., 2016). Providers have expressed unease when it comes to opioid misappropriation and report an increased anxiety in the treatment of unrelenting pain with lack of appropriate education in prescribing opiates (Dowell et al., 2016).

Private and governmental agencies funding the costs of disability and opiate misuse, abuse, overdose and death would benefit from fiscal prudence. Providing a survey of provider practices in the four-state area (Kansas, Missouri,

Oklahoma and Arkansas) would benefit stakeholders understanding of current health practices for the treatment of chronic pain. This scholarly project aims to identify what providers prescribe for chronic low back pain and how or if they utilize any specific deterrents such as UDS and PMDP (NPA, 2012).

CHAPTER III

Methodology

Research suggests a lack of knowledge and training in various pain treatment areas and treating non-malignant cancer pain with opioids (Harris et al., 2008). Nurse Practitioners (NPs) and Physician Assistants (PAs) are asked to control chronic pain in the primary setting yet meet formidable challenges in how to select appropriate nonpharmacological and pharmacologic remedies. In addition, when an opiate is needed these providers are asked to provide continued monitoring to curtail abuse and diversion (Carter, 2017). The purpose of this study was to review the prescribing practices of primary care providers in Southeast Kansas. The data regarding opioid prescription was then compared to opioid use in other regions of Kansas. This study looked at one specific set of clinics in Southeast Kansas to discern how providers were treating acute and chronic pain and if they were following the recommended CDC guidelines when prescribing opioids.

A major clinical challenge facing the nation is the management of acute and chronic back pain. The overuse of opioids and the abuse potential associated with the use of opioids has powered efforts to create a set of guidelines to be used by clinicians for the treatment and therapy of acute and chronic pain.

Design

A descriptive retrospective cohort chart review was conducted on thirty providers from a variety of clinics in Southeast Kansas. The aim of this study was to discern the quantity of opioid prescriptions written for acute and chronic back pain in rural Southeast Kansas among multiple clinics. In addition, this project attempted to discover whether the CDC guidelines had been followed such as the use of PMDPs and UDS, and appropriate monitoring of the patient was done in these clinics in Southeast Kansas. The number of opioids prescribed in Southeast Kansas was then compared to other regions in Kansas.

Sampling

A group of clinics in the Southeast Kansas area were used to obtain this data on prescribing practices of primary care providers for the treatment of acute and chronic back pain. These clinics serve patients in the four-state area of Kansa, Missouri, Oklahoma, and Arkansas (Hudspeth, 2011).

Eight charts from seven clinics with a total of 30 providers, including physicians, nurse practitioners, and physician assistants were reviewed, across a variety of specialties within the clinics including internal medicine, family practice and acute care. Inclusion criteria for this project were individuals with a diagnosis of acute and/or chronic back pain, adults over the age of eighteen and individuals that have been prescribed an opioid during their treatment for acute or chronic back pain. Exclusion criteria for this project consisted of patients under

the age of eighteen, pediatric providers and individuals that do not have a diagnosis of acute and or chronic back pain.

Data collection began following approval from the Pittsburg State University Irene Ransom Bradley School of Nursing Institutional Review Board and the Pittsburg State University Institutional Review Board. Permission was also obtained from the board of the clinics to be used. Confidentiality was maintained by eliminating identifying information regarding patients and providers.

The benefits of the data collection will be identifying areas for improvement in the treatment of acute and chronic back pain by the providers in the clinics studied. The chart review sought to reveal which specialties in the clinics were utilizing evidence-based guidelines more than the other areas, and whether different providers (MDs, NPs and PAs) prescribe more opioids than the others. There was no risk to participation in this project as no identifying information was used, maintaining confidentiality of both providers and patients.

Instrument

A retrospective chart review was conducted on providers in select clinics between April 1, 2017 and April 1, 2018. The survey used was created specifically to gather information of basic provider and patient demographics and a review of the prescribing practices of the providers. The data regarding opioid prescribing was compared to regional data to identify how Southeast Kansas compared to other regions in opioid use. This data was useful in identifying if

providers were utilizing the CDC's recommended guidelines when prescribing opioids for patients with acute or chronic back pain.

Procedure

Demographic information was extracted from each chart to include the primary care provider's gender, age, clinical practice (MD, DO, APRN, and PA), years in practice, DEA licensure and area of practice (Family Practice, Internal Medicine, or Acute Care). The data collected included the provider's participation in pain management courses during their educational training or continuing education classes since receiving their degree.

Additional data collected from the chart review included what therapies were initiated for the acute and/or chronic back pain, including non-pharmacological methods. The chart review also noted whether the provider followed a set of evidence-based guidelines for treating the presenting pain and subsequent monitoring of the patient, and whether education regarding opiate use was provided to the patient. Data collection covered a one-year time span from April 1, 2017 through April 1, 2018.

To extract the data needed for this project, the researcher requested assistance from the quality improvement manager of the clinics. The quality improvement manager decoded any identifying information of both providers and patients prior to providing the extracted data to the researcher, thus ensuring confidentiality.

SPSS software was used to compile the information and trends were noted in the number of providers that used a set of guidelines, what those guidelines

were, the use of a contract between the patient and the provider, how they monitored the patient for compliance and abuse potential, length of time the patient was provided opioids and what opioids were prescribed. Southeast Kansas was then compared to other regions in Kansas regarding the number of opioids individuals are receiving.

Analysis

Following approval from the Pittsburg State University Irene Ransom Bradley School of Nursing Institutional Review Board, the Pittsburg State University Institutional Review Board and board approval for the clinics, data collection took place over four weeks or until all data had been obtained and the data collected was from a one-year time frame. Confidentiality was maintained by not using any identifying information regarding patients or providers, and all information obtained was securely locked in a cabinet within the researcher's home. Once all the information had been extracted, the data was analyzed using SPSS software to answer the questions set forth in Chapter I:

- 1) Are clinicians in selected clinics in rural Southeast Kansas prescribing opioids using the current CDC recommendations and guidelines?
- 2) How does Southeast Kansas compare to other regions in Kansas regarding the number of opioids written by providers?

Assumptions

The assumptions with this study were that provider documentation was complete and accurate, a clear set of guidelines were used and appropriate

monitoring of the patients for abuse risk and accurate documentation of alternative modalities used. It was also assumed that anonymity was maintained throughout the collection process. An added conjecture was that the information extracted was an appropriate representation of provider practices in the four-state area (Kansas, Missouri, Oklahoma, and Arkansas) and the surrounding counties.

Limitations

One limitation of this study was the limited number of clinics that was utilized may not provide a complete representation of all clinics in the area. An additional limitation is the short time frame that was used for data collection and the small representative sample of providers. This research may leave the results open to inspection regarding provider judgement in therapeutic modality choice when it comes to acute and chronic back pain. Updated treatment modalities chosen by providers and updated guidelines that providers are referencing may not be adequately identified in this study due to the evolving nature of medicine. As this was a chart review, there was no bias in self reporting of therapies chosen for the treatment of both acute and chronic back pain. The intent of this research was to identify how providers chose to treat acute and chronic back pain, whether they were utilizing a standard set of guidelines, how they monitored the patients and whether they were inadvertently contributing to the opioid epidemic.

Delimitations

Provider differences in the treatment of pain and ongoing pain management which includes non-prescription pain medications and opioids may

be a delimitation in this research. A chart review would be unable to establish the reason for a provider's clinical judgement when choosing a course of treatment, but it would identify if providers are following recommended CDC guidelines in their practice.

Summary

This research will help identify the current practices of local healthcare providers when treating acute and/or chronic back pain. It will note whether providers are doing due justice and following the CDC's recommended guidelines when providing opioids for pain management, in addition to utilizing tools to mitigate abuse potential, and identify individuals at risk for opiate abuse. This research also aimed to recognize whether providers used nonpharmacological therapies as first line treatment for chronic and acute back pain.

CHAPTER IV

Evaluation Results

More than 20 million American adults suffer from pain, and approximately 23 million more suffer from chronic relentless pain leading to disability, loss of work productivity, diminished quality of life and diminished health status (Meldrum, 2016). The economic burden of this is more than \$500 billion annually, not including pain in children, individuals residing in long-term care facilities, military persons and prisoners (Pizzo, 2012). The cost for pain in the U.S. related to lost wages and medical care exceed the cost for cancer, heart disease and diabetes collectively (Pizzo, 2012).

An integrative approach with physical therapy, psychological, mental and physiological therapy, relaxation, coping methods and self-hypnosis are the best-known alternatives to opioids (Meldrum, 2016). Educating clients on adaptive habits to manage incapacitating consequences of their ailment is critical for efficacious management of pain (Peters, 2017). Individuals need to learn coping mechanisms to manage taxing life events without the use of drugs and education is paramount.

The year 2016 brought a request for change by The Physicians for Responsible Opioid Prescribing, leading multiple health care organizations to

implore upon the Joint Commission for Accreditation of Health Care Organizations, to stop the compulsory pain assessment implying that it promotes hazardous pain control practicing (Meldrum, 2016). While this request did bring about some changes in prescribing practices for nonacute, nonterminal pain, it has also sparked new debates regarding pain management. The initial campaign from pharmaceutical companies that opioids were safe and not addictive was no longer found to be true. Pharmaceutical manufacturers adept at targeting markets of individuals, benefits to insurance carriers and creative free enterprise among drug traffickers brought proof that opioid use and accessibility often led to lethal consequences (Meldrum, 2016).

The United States continues to see an increase in the opioid epidemic, and intricate tactics will be needed to pursue developing perils and respond appropriately. More than 200 million opioid prescriptions were distributed from retail U.S. pharmacies in 2016 (Throckmorton, 2018). Preventing new addiction through educational improvements regarding opioid prescribing and promoting the use of non-opioid pain medications are just a couple of ways to tackle the destructive influence of the opioid epidemic.

As chronic pain is so pervasive it is unrealistic and unfavorable to expect pain specialists to manage all pain for patients with less than 4000 specialists in the country (Pizzo, 2012). It is also unreasonable to expect primary care providers to manage pain without the appropriate education.

Purpose of the Study

The purpose of this scholarly project was to discern the quantity of opioid prescriptions written for acute and chronic back pain in rural Southeast Kansas among multiple clinics. In addition, this project would discover whether CDC guidelines had been followed such as the use of UDS and PMDP, and appropriate monitoring of the patient in these clinics in Southeast Kansas. This project noted if clinicians attempted nonpharmacological and nonopioid therapy to manage acute and chronic back pain before they initiated opioid therapy. These numbers would be compared to other regions in the state of Kansas to determine how Southeast Kansas is contributing to or changing the opioid crisis.

Research Questions

The research questions for this scholarly project were:

- 1) Are clinicians in selected clinics in rural Southeast Kansas prescribing opioids using the current CDC recommendations and guidelines?
- 2) How does Southeast Kansas compare to other regions in Kansas regarding the number of opioids written by providers?

Study Results

This was a retrospective chart review on seven small rural Southeast Kansas clinics. A total of eight charts among 30 providers in the clinic were reviewed totaling 240 chart reviews, and basic provider demographics were obtained. Provider demographics included: provider degree (MD, DO, NP, PA), provider age, provider gender, years in practice, current DEA licensure, practice

specialty, and if the provider had specific pain management education with their formal training or if they had participated in any continuing education courses related specifically to pain management. Please refer to Tables 2-7, and Histogram 1 and 2.

Provider Demographics

Table 2. *Clinic Location*

	Frequency	Percent
Pittsburg	104	43.3
Parsons	24	10.0
Independence	8	3.3
Iola	40	16.7
Columbus	16	6.7
Coffeyville	24	10.0
Baxter Springs	24	10.0
Total	240	100.0

Table 1 shows the number of charts provided from each clinic for review. Over 43.3% of all charts came from a clinic in Pittsburg.

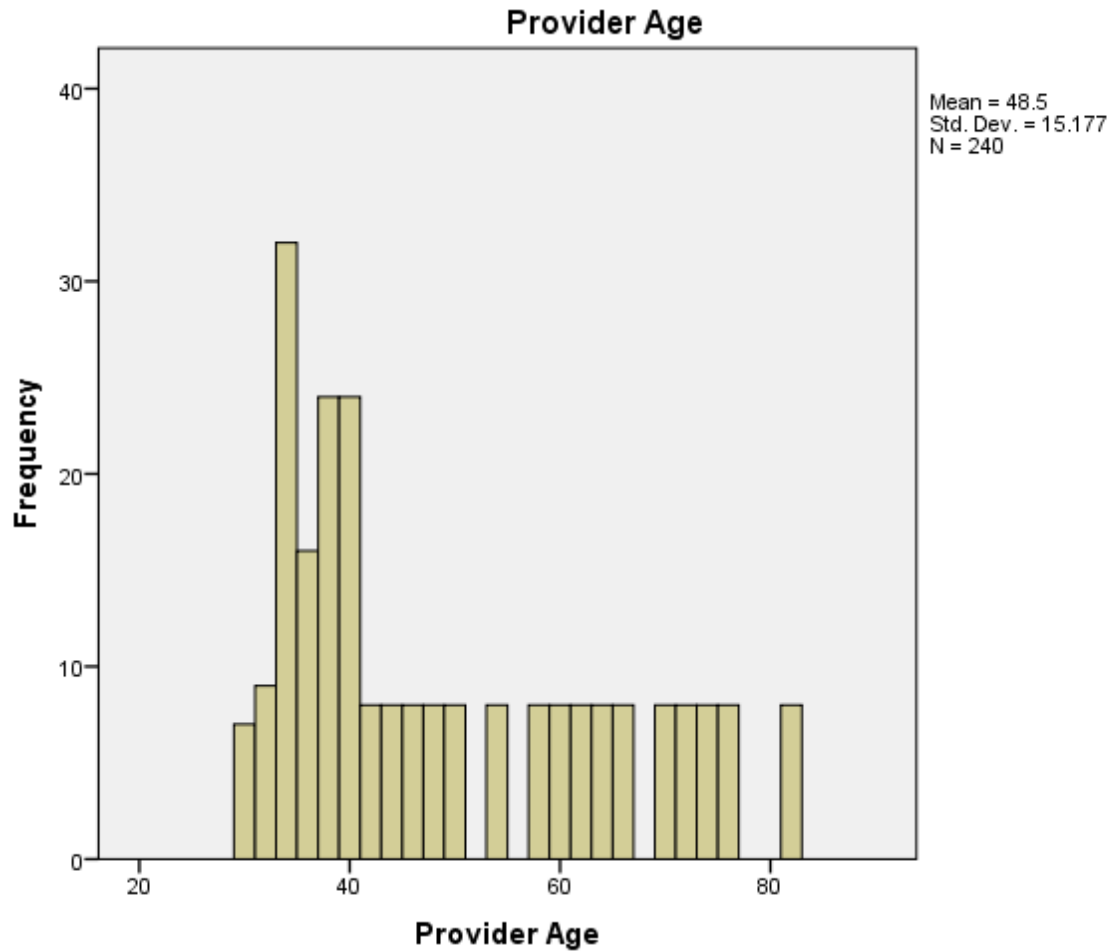
(240= the number of charts reviewed in total- 8 charts per provider)

Table 3. *Provider*

	Frequency	Percent
Medical Doctor	80	33.3
Doctor of Osteopathic Medicine	8	3.3
Nurse Practitioner	128	53.3
Physician Assistant	24	10.0
Total	240	100.0

Table 2 shows that more than 50% of the providers were Nurse Practitioners followed by just over 30% that were Medical Doctors.

Histogram 1



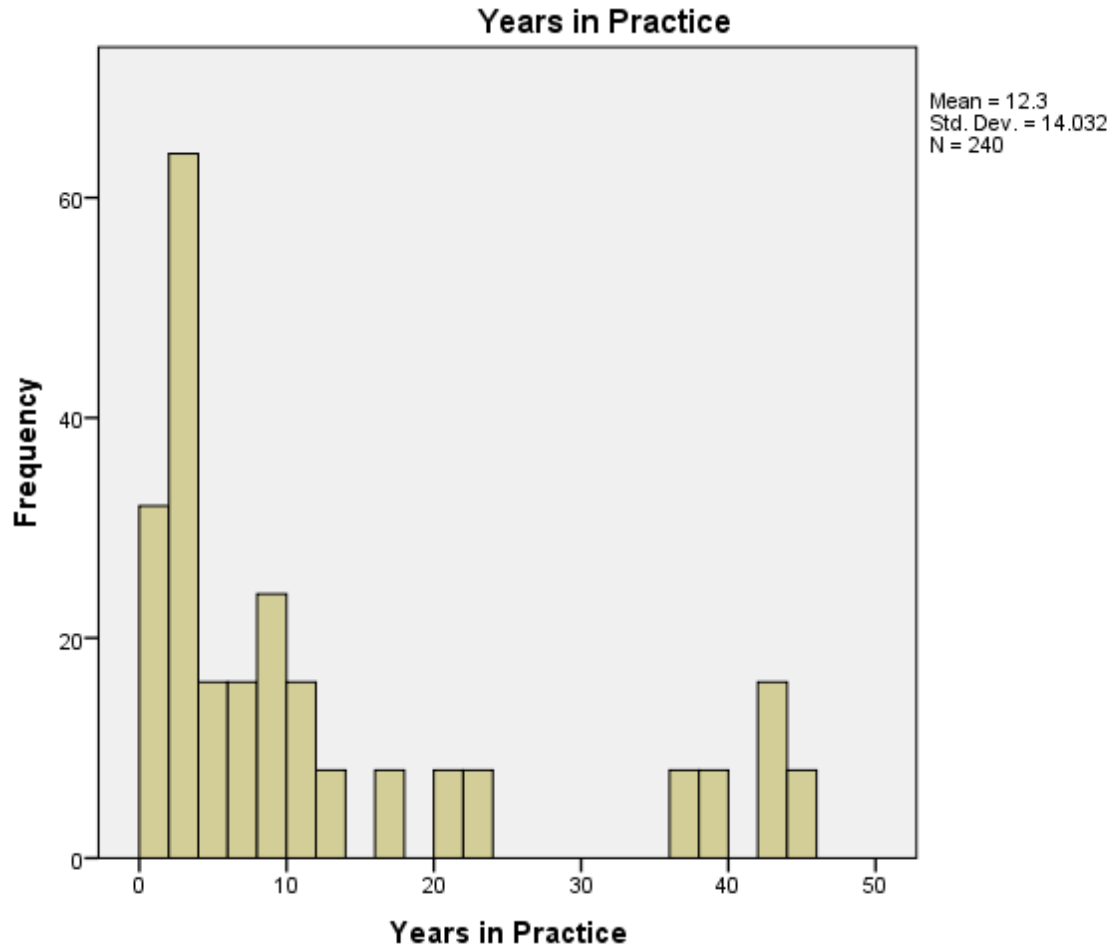
The average age of the providers was 48.5 years (SD = 15.17). The histogram indicates a larger proportion of providers that were 40 years or less.

Table 4. Provider Gender

		Frequency	Percent
Valid	Male	64	26.7
	Female	176	73.3
	Total	240	100.0

Table 3 indicates that less than 75% of the providers were female

Histogram 2



The average number of years the provider has been in practice was 12.3 years (SD= 14.032). The histogram indicates that more providers have been in practice less than fifteen years.

Table 5. *DEA Licensure Current*

	Frequency	Percent
Yes	240	100.0

All (100%) of the providers have a current DEA License.

Table 6. *Provider Specialty*

	Frequency	Percent
Internal Medicine	40	16.7
Family Practice	168	70.0
Acute Care	32	13.3
Total	240	100.0

Table 5 indicates that less than 75% of the providers practice in Family Medicine and less than 20% practice in Internal Medicine.

Table 7. *Pain Management Education in Training*

	Frequency	Percent
Yes	8	3.3
No	56	23.3
Total	64	26.7
Missing	176	73.3
Total	240	100.0

Note: Missing values were due to providers that did not provide a response to the question.

Table 6 indicates that slightly less than one quarter (23.3%) of providers did not get formal pain management education during their training.

Table 8. *Continuing Education in Pain Management*

	Frequency	Percent
Yes	48	20.0
No	16	6.7
Total	64	26.7
Missing	176	73.3
Total	240	100.0

Note: Missing values were due to providers not giving a response to the question.

Of the providers that did answer the question, one-fifth (20%) of them have taken some continuing education course in pain management since beginning practice.

Patient Demographics

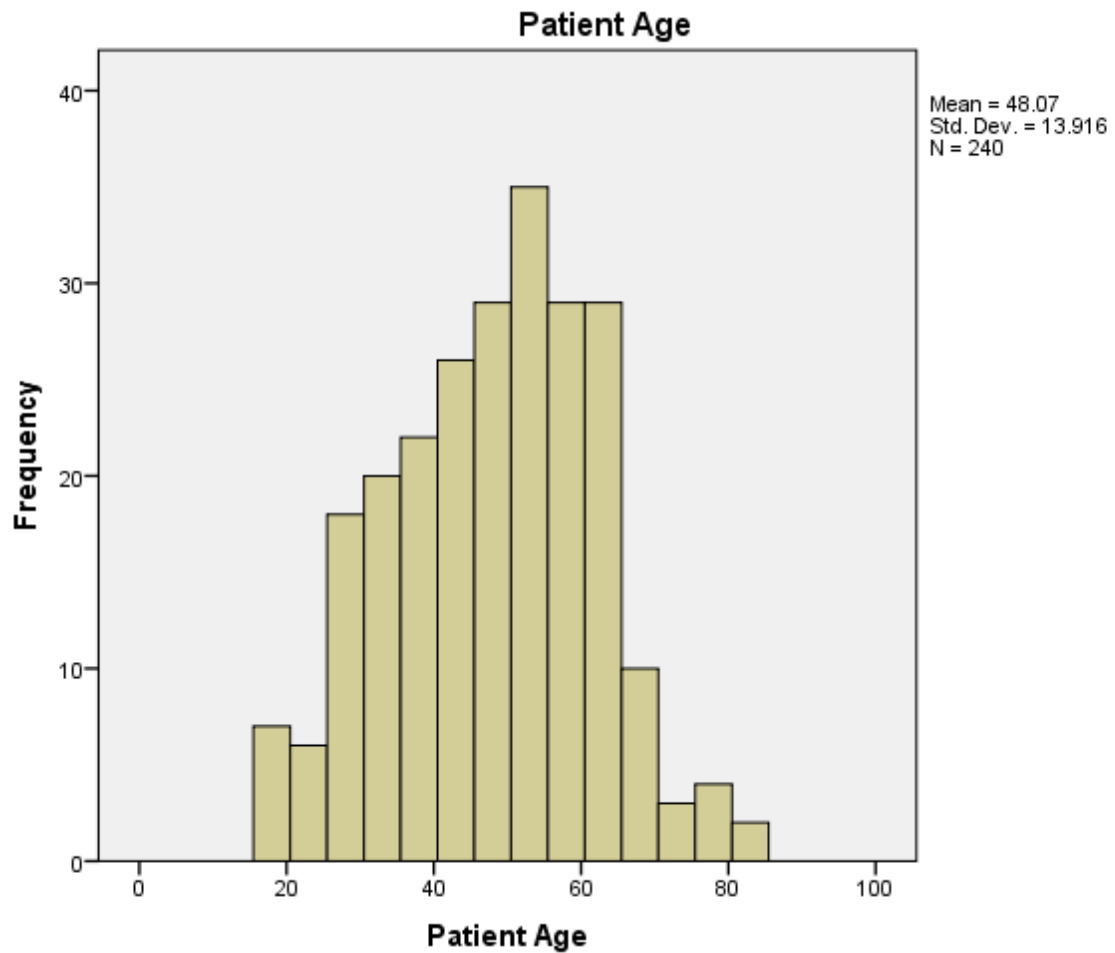
Basic demographic information from each patient chart that was also obtained and reviewed. To be included in the study; each chart had to have a diagnosis of acute or chronic back pain. Patient information obtained included patient age, patient gender, patient ethnicity and whether they were insured, uninsured or underinsured. During the chart review, it was found several times that although the patient may have come in to be seen for an acute or chronic back pain, the diagnosis given was “other chronic pain”. Please refer to tables 9-11 and Histogram 3.

Table 9. *Diagnosis of Acute or Chronic Pain?*

	Frequency	Percent
Valid Yes	240	100.0

100% of the charts reviewed had a diagnosis of acute or chronic back pain which was criteria for the inclusion into the study.

Histogram 3



The average age of the patient was 48.07 years (SD=13.916). The largest grouping of individuals tended to be in the range of 50-60 years of age.

Table 10. Patient Gender

	Frequency	Percent
Male	110	45.8
Female	130	54.2
Total	240	100.0

More than one-half of the patients (54.2%) receiving opioids were women

Table 11. *Patient Ethnicity*

	Frequency	Percent
Caucasian	193	80.4
Hispanic	8	3.3
African American	10	4.2
Native American	10	4.2
Caucasian/Hispanic	2	.8
Total	223	92.9
Missing	17	7.1
Total	240	100.0

Note: Missing values were due to patients that did not answer the question regarding ethnicity.

More than three-fourths of the patients identified themselves as Caucasian, followed by 4.2% identifying as African American or Native American, 3.3% identifying as Hispanic and 0.8% identifying as both Caucasian and Hispanic.

Table 12. *Insurance*

	Frequency	Percent
Insured	169	70.4
Uninsured	71	29.6
Total	240	100.0
Total	240	100.0

Close to three-fourths (70.4%) of the patients did have some type of insurance.

Research Questions

- 1) Are clinicians in selected clinics in rural Southeast Kansas prescribing opioids using the current CDC recommendations and guidelines?

- 2) How do the statistics pertaining to opioid use for treating acute and chronic back pain in the selected clinics compare to other regions in the state of Kansas?

Please refer to Tables 13-20 for data related to practice question one.

Table 13. *Were CDC Guidelines Followed?*

	Frequency	Percent
Yes	188	78.3
No	52	21.7
Total	240	100.0

More than three-fourths (78.3%) of the providers were following CDC guidelines.

Table 14. *Did Provider Start with Conservative Management: Ice/Heat/Ibuprofen/Tylenol/Steroids-Physical Therapy or a combination of conservative treatment?*

	Frequency	Percent
Yes	197	82.1
No	43	17.9
Total	240	100.0

More than three-fourths (82.1%) of the providers began with conservative management for acute or chronic back pain.

Table 15. *Was education provided to the patient regarding opioid use?*

	Frequency	Percent
Yes	33	13.8
No	81	33.8
Total	114	47.5
Missing	126	52.5
Total	240	100.0

Note: Missing value were because the provider was following guidelines and did not prescribe opioids.

A little more than one-tenth (13.8%) of providers prescribing opioids provided education to the patient, with one-third (33.8%) of the providers not providing patient education regarding the use of opioids.

Table 16. *If an Opioid was prescribed by the Provider- was it before or after conservative therapy?*

	Frequency	Percent
Before	56	23.3
After	56	23.3
None Prescribed	128	53.3
Total	240	100.0

There was an equal split with just less than one fourth of providers prescribing opioids (23.3%) before conservative management and just less than one fourth (23.3%) prescribing opioids after conservative management, while slightly more than one-half (53.3%) of providers not prescribing opioids at all.

Table 17. *Once the opioid was prescribed: Did provider obtain a Controlled Substance Agreement?*

	Frequency	Percent
Yes	69	28.7
No	44	18.3
Total	113	47.1
Missing	127	52.9
Total	240	100.0

Note: Missing values were because the Provider did not prescribe opioids.

Of the providers that chose to prescribe opioids, more than one-fourth (28.7%) providers obtained a Controlled Substance Agreement.

Table 18. *Did provider consult a Prescription Drug Monitoring Program?*

	Frequency	Percent
Yes	46	19.2
No	67	27.9
Total	113	47.1
Missing	127	52.9
Total	240	100.0

Note: Missing values were due to providers not prescribing opioids for acute/chronic back pain.

Of the providers that chose to prescribe an opioid, more than one-fourth (27.9%) did not consult the Prescription Drug Monitoring Program prior to prescribing the opioid, with less than one-fifth (19.2%) consulting the Prescription Drug Monitoring Program prior to prescribing an opioid.

Table 19. *Did the provider obtain a urine drug screen?*

	Frequency	Percent
Yes	71	29.6
No	42	17.5
Total	113	47.1
Missing	127	52.9
Total	240	100.0

Note: Missing values were due to providers not prescribing opioids.

Of the providers that did prescribe opioids, more than one-fourth (29.6%) of them obtained a urine drug screen, while less than one-fifth (17.5%) of providers did not obtain a urine drug screen.

Table 20. *What opioid was prescribed?*

	Frequency	Percent
Valid Hydrocodone/Oxycodone	99	41.3
Fentanyl	2	.8
Morphine	5	2.1
Both Hydrocodone and Morphine	5	2.1
Fentanyl and Morphine	1	.4
Total	112	46.7
Missing	128	53.3
Total	240	100.0

Note: Missing values were due to providers not prescribing opioids

More than one-half (53.3%) were missing which means that the prescriber did not prescribe opioids. Of the opioids prescribed, less than one-half (41.3%) of the opioids given were hydrocodone or oxycodone.

Table 21. *Dose of Opioid*

	Frequency	Percent
Hydrocodone/Oxycodone 5/10 mg	99	41.3
Morphine 5/10/15/30mg	5	2.1
Morphine/Hydrocodone/Oxycodone 5 and 5	5	2.1
Fentanyl/Morphine 50 and 30	1	.4
Total	110	45.8
Missing	130	54.2
Total	240	100.0

Note: Missing values were due to providers not prescribing opioids. More than one-half (54.2%) were missing meaning they did not prescribe opioids. Of the providers that did prescribe an opioid, less than one-half (41.3%) were given either 5 or 10 mg as an initial dose of hydrocodone or oxycodone, followed by 2.1% being prescribed a dose of morphine and 2.1% being provided both hydrocodone or oxycodone and morphine.

Specific Purpose of the Study

The goal of this scholarly project was to discern the quantity of opioid prescriptions written for acute and chronic back pain in rural Southeast Kansas among multiple clinics. In addition, this project attempted to discover whether CDC guidelines had been followed such as the use of UDS and PMDP, and appropriate monitoring of the patient was done in these clinics in Southeast Kansas. This project also noted if clinicians attempted nonpharmacological and nonopioid therapy to manage acute and chronic back pain before they initiated opioid therapy. These numbers were compared to other regions in Kansas to determine how Southeast Kansas is contributing to or changing the opioid crisis.

Study Findings

It is no secret that the United States (US) has had a problem with abuse, misuse and diversion of opioids for several years. This issue has been found to be multi-factorial, and includes improper prescribing, an assortment of drug suppliers both legal and illegal, delayed government reaction and incessant advertising for off-label consumption by pharmaceutical companies (Maxwell, 2010).

A retrospective chart review was performed to see if providers in several rural Southeast Kansas clinics may be contributing to the misuse, abuse and diversion of opioids due to inappropriate prescribing practices outside of recommended CDC clinical guidelines. The information obtained would then be compared with other regions in the state of Kansas.

The survey used was created specifically to gather information of basic provider and patient demographics and a review of the prescribing practices of the providers. The specific questions addressed was related to the recommended CDC clinical guidelines for prescribing opioids being followed within the rural Southeast Kansas clinic. The recommended guidelines being reviewed were 1) conservative management of acute or chronic low back pain with non-steroidal anti-inflammatory drugs (NSAIDS), acetaminophen, physical therapy, or use of ice or heat packs? 2) if an opioid was prescribed, did the provider consult the prescription drug monitoring system, obtain a controlled substance agreement with the patient, or obtain a urine drug screen prior to beginning opioid therapy? 3) did the provider begin with the lowest possible dose of opioid therapy, what

opioid was given and at what dose? 4) did the provider educate the client on the use of opioid therapy? 5) has the provider received specific training in pain management through formal education or taken continuing education courses specifically geared toward pain management?

Provider Demographics Discussion

There were seven clinics used for this study in the Southeast Kansas region. The clinic in Pittsburg had 43.3% of the practicing providers, Iola had 16.7% of the providers, the Parsons clinic had 10% of the providers, Coffeyville and Baxter Springs had 10% of the practicing providers, and Independence had 3.3% of the providers.

The providers were broken down based on degree; 33.3% were medical doctors, 3.3% were Doctor of Osteopathic Medicine, 53.3% were nurse practitioners and 10% were physicians' assistants. The average age of the provider was 48.5 years with a standard deviation of 15.17. There were 26.7% male providers and 73.3% female providers and the average number of years in practice was 12.3 years with a standard deviation of 14.032. All the providers held a current DEA licensure. Provider specialties were broken down into internal medicine with 16.7% of practicing providers, 70% of the providers practiced in Family Medicine and 13.3% practiced in Acute Care.

Just over 73% of providers did not answer whether they had received any formal training in pain management, 3.3% replied that they had received formal training and 23.3% reported not receiving any formal pain management education. A significant number of providers (73.3%) did not answer if they had

attended any continuing education courses specifically geared towards pain management, 20% replied that they had attended continuing education courses for pain management and 6.7% had not taken any continuing education courses.

Patient Demographics Discussion

Patient demographic information was also obtained from each patient chart. All charts reviewed had a diagnosis of acute or chronic back pain listed in the chart. The average age of the patient was 48.07 years with a standard deviation of 13.916. The largest age group of the patients was between the ages of 50-60 years. Males represented 45.8% of the patients and female comprised 54.2% of the charts reviewed.

Of the charts reviewed, 80.4% of the patients identified themselves as Caucasian, 3.3% identified as Hispanic, 4.2% identified as African American, 4.2% identified themselves as Native American and 0.8% identified themselves as Caucasian/Hispanic. Insured patients comprised 70.4% of the patients while 29.6% of the patients were uninsured.

Analysis of Research Questions

The results of the survey revealed that 78.3% of the providers practicing in the clinics were following the recommended CDC guidelines for opioid prescribing while 21.7% of the providers were not following the guidelines. Conservative management which included the use of NSAIDs, acetaminophen, ice, heat, physical therapy or a combination of all was used by 82.1% of the

providers chose to use conservative management and 17.9% did not start treatment with conservative therapies.

Patient education regarding the use of opioid therapy revealed that 13.8% of the providers educated the patient on opioid use and 33.8% did not provide the patient with any education regarding opioid therapy and the 52.5% that did not provide education was the result of following CDC guidelines and no opioids were being prescribed to the patient. When looking at whether an opioid was prescribed before or after conservative management, 53.3% did not receive any opioids, 23.3% of patients received an opioid prior to conservative management and 23.3% received an opioid after conservative management was tried.

CDC recommendations include the use of a controlled substance agreement (CSA) and while 52.9% of the providers did not use a CSA because no opioids were prescribed, 28.7% did utilize a CSA prior to prescribing opioids and 18.3% did not obtain a CSA prior to initiating opioids. The use of prescription drug monitoring programs (PDMP) are also recommended and 52.9% of the providers did not consult the PDMP because they did not prescribe an opioid, 27.9% did not consult the PDMP prior to initiating an opioid and 19.2% of the providers did utilize the PDMP. Urine drug screening (UDS) is another recommendation when prescribing opioid therapy and while 52.9% of the providers did not obtain a UDS because they did not prescribe opioids, 29.6% of the providers did obtain a UDS and 17.5% did not obtain a UDS.

Hydrocodone or oxycodone were utilized for pain management within the clinics was in 41.3% of patients received either hydrocodone or oxycodone, 0.8%

were provided fentanyl, 2.1% were given morphine, 2.1% were given both hydrocodone and morphine, 0.4% were provided fentanyl and morphine and 53.3% did not receive any opioids. CDC guidelines recommend using the lowest effective dose if pain is going to be managed with an opioid. An initial dose hydrocodone 5 mg or oxycodone 10 mg was given to 41.3% of patients, 2.1% received a dose of 5/10/15 or 30 mg of morphine for an initial dose, 2.1% received 5 mg of morphine and 5 mg of either hydrocodone or oxycodone as an initial dose, 0.4% received 50 mcg of fentanyl and 30 mg of morphine as an initial dose while 54.2% did not receive any opioid therapy.

Regional Data

Regional data was retrieved from the Kansas Epidemiological Data Dashboard and it was broken down into counties (http://www.preventoverdoseks.org/kpdo_data.htm). The researcher took the data from each county in each region of Kansas and compiled the data to reflect the region. The most recent data available was from 2017 and the information looks at each region of Kansas but does not reflect any one clinic or set of clinics in the other regions.

The information for each region is the number of opioids per 100 persons in the region. The Kansas City Metro region had the lowest number of opioids at 96.13 opioids per 100 persons. The Southwest region came in with the next lowest at 110.2 opioids per 100 persons. The Northeast region in Kansas held the third lowest number of opioids with 112.605 opioids per 100 persons. The Northwest region of Kansas revealed 116.45 opioids per 100 persons. The North

Central region had 124.03 opioid per 100 persons while the South-Central region has 136.73 opioids per 100 persons. The Southeast Kansas region overall had the highest number of opioids with 157.858 opioids per 100 persons. This data clearly identifies that Southeast Kansas has the largest number of opioids per 100 residents than the other regions in the state of Kansas, however, in the clinic that this researcher looked at, just over one half of the providers in the clinics did not prescribe opioids for acute or chronic back pain.

Summary

The purpose of this study was to see if providers within a set of clinics in the Southeast Kansas area were contributing to the opioid problem in the US with inappropriate prescribing practices compared to other regions in Kansas. The data clearly indicates that Southeast Kansas has the highest number of opioids per 100 persons compared to other regions in the state, however, this researcher was only able to gather data from one set of clinics in the Southeast Kansas region, and the information revealed that more than half of the providers did not prescribe an opioid to patients for management of acute or chronic back pain. The data obtained unfortunately does not provide information regarding various clinics across the other regions of Kansas. Within the clinics that were researched, just over 50% of the providers followed CDC guidelines for the safe prescribing of opioids while just over 25% of the providers obtained a CSA and obtained a UDS. Just over one-fourth did not consult the PDMP prior to initiating opioid therapy.

CHAPTER V

Discussion of Findings, Recommendations and Conclusions

The purpose of this scholarly project was to determine if a set of clinics in Southeast Kansas may be contributing to the opioid epidemic and then compare Southeast Kansas' opioid use to other regions in Kansas. The data retrieved from the clinics in Southeast Kansas looked to see if providers within the clinic were following CDC guidelines when prescribing opioids for acute or chronic low back pain.

Chronic pain management can be challenging for providers that have specialized in pain therapy, much less for providers that lack formal education. Opioids should not be the initial medication provided to patients with chronic pain. Different types of pain are treated with various medications and are often treated more effectively with non-opioid pharmacological therapy. Treatment of pain is not a one drug fits all category and each patient should be evaluated independently regarding the type of pain they have and ascertain the best approach to treatment that carries the least amount of side effects for the patient.

Roughly 25 million adult Americans experience pain every day and about 23 million more endure relentless pain causing debilitation, loss of job productivity, and a diminished quality of life (Meldrum, 2016). Opioid addiction

is a societal issue and the misuse of drugs is among the 25 leading causes of the death in the world (Beneitez, 2017).

The best approach to chronic pain including both acute and chronic low back pain is a multidisciplinary method encompassing psychological, physical, cognitive-behavioral therapies that focus on respite and coping mechanisms with self-hypnosis (Meldrum, 2016). Managing chronic noncancer pain in individuals with substance abuse disorders can be slightly more challenging for providers, but following recommended guidelines, professionals can carefully and successfully treat these persons for their pain and their addiction.

Research Questions and Relationship of Outcomes to Research

The CDC recommended guidelines include the use of nonpharmacological and nonopioid therapy as first-line treatment to include ibuprofen, Tylenol, ice, heat, physical therapy or a combination of each, education provided to patients regarding goal expectation and opioid use-risks versus benefit, if an opioid was prescribed, was it before or after conservative management, the choice of the opioid and dose provided, use of a controlled substance agreement, use of prescription drug monitoring programs (PMDP); and periodic drug screenings to verify compliance and deter abuse and misuse.

Demographic information obtained on the providers in this study revealed that the average age of the provider was 48.5 years, with 73.3% of the providers being female compared to 26.7% male providers and the average years in practice was 12.3 years. The age of the provider is consistent with other research conducted showing an average provider age of 49.1 (Keller, 2012). Inconsistent

with other research is the provider gender, which is the opposite from Keller's (2012) study where 71% of providers were male. The average number of years in practice of this study (12.3 years) was slightly lower than Keller's (2012) study which had an average of 18.5 years in practice.

Patient demographics was also looked at and this study showed the average age of the patient receiving opioid therapy was 48.07 years. The largest grouping of individuals ranged between 25-70 years of age (Keller, 2012). This is consistent with other research conducted showing the average age of patient receiving opioid therapy between the ages of 19-40 at 20.4%, 28.3% of individuals between the ages of 41-65 years of age, and 35.3% of individuals receiving opioid therapy over the age of 65 (Keller, 2016). The most recent data reviewed by the CDC indicates that the largest group of individuals receiving opioid therapy between the ages of 25-40 years of age (CDC, 2017).

Patient gender in this study indicated that 54.2% of females received opioids which was consistent with 61.2% females found in the study done by Keller (2012). This was inconsistent with the most recent data from the CDC revealing that 55.6% of males received opioids compared to 44.4% of females.

Patient ethnicity was also gathered in this study and revealed that 80.4% of patients receiving opioids were Caucasian, followed by 4.2% African American, 4.2% Native American and 3.3% Hispanic with 0.8% identifying as Caucasian/Hispanic. This was partially consistent with other research that indicated 59.9% of opioid recipients were Caucasian, 27.4% African American, 8.1% Hispanic, 0.8% Native American and 3.4% identifying as other (Keller,

2012). This study was also somewhat consistent with the most recent CDC data which revealed 8,128 Caucasian individuals receiving opioids, 1,400 African Americans and 2,156 Hispanics receiving opioids (CDC, 2017).

This study also revealed that of the individuals receiving opioid therapy, 70.4% held some form of insurance compared to 29.6% that were uninsured. This data was consistent with other research revealing that more than three-fourths of individuals receiving opioids held some type of insurance and only 4.6% of persons being uninsured (Keller, 2012). Data retrieved from the CDC broke this information down into an estimation of the percentage of persons that had a drug related hospitalization or emergency room visit based off insurance and showed that 84.3% of individuals that were hospitalized with a drug related event or visited the emergency room due to a drug related event held some form of insurance (CDC, 2017).

The results of this study were consistent with prior studies indicating that pain management is primarily provided by family practice providers followed by internal medicines providers. Nurse practitioners and physician assistants prescribe more opioids than pain management specialists (Kaye, 2017). Seventy percent of the providers in this study were family practice, and 16.7% were internal medicine. Of the 70% of family practice providers, 53.3% were nurse practitioners followed by 33.3% of medical physicians.

Considering formal pain management education during training, the results of this survey are consistent with prior research. The survey revealed that 23.3% of providers did not receive any pain management training during their

formal education while 3.3% report receiving formal education with pain management. In one research study completed in 2009 in which more than 30 physician organizations, revealed that education for pain management was inadequate and did not lead to proficiency (Pizzo, 2012). While not required and not a formal form of education, the results of this study did reveal that of the providers that answered the question, 20% reported that they had taken some continuing education classes specifically geared toward pain management compared to 6.7% that had not taken any classes, however 26.7% chose not to answer the question.

There are a finite number of pain specialists available making primary care providers ideally responsible for providing pain management to patients. However, if education and training is not restructured, effective pain management will continue to be a challenge. Providing education for primary care providers can increase patient outcomes through a more comprehensive understanding of pain, prevention and treatment of pain with further knowledge on avoiding abuse and misuse of medication.

Conservative management of acute and chronic low back pain has been shown to be more effective than opioids, and studies have revealed that non-steroidal anti-inflammatory drugs (NSAIDS) acetaminophen and aspirin are frequently provided (Chou, 2007). The results of this study revealed that 82.1% of providers in the clinic, initiated treatment with an NSAID, sometimes coupled with physical therapy, ice or heat treatment. This follows the CDC recommended guidelines for the use of conservative management for low back pain either acute

or chronic. This study also revealed that 53.3% of clinic providers followed the recommended guidelines and did not prescribe opioids to their patients, yet 23.3% of the providers prescribed opioids prior to the use of conservative management; and 23.3% prescribed opioids after trialing conservative management.

When prescribing opioids, the lowest effective dose for the shortest amount of time should be prescribed if the provider is following the recommended CDC guidelines. This study revealed that 53.3% of providers followed guidelines by not prescribing opioids, and although it is recommended that providers begin opioid dosing with the lowest dose, this study found that hydrocodone was initiated at the lowest dose of 5/325 mg, oxycodone was initiated at the higher dose of 10/325 mg. Morphine alone or a combination of morphine and either hydrocodone or oxycodone were the next most frequent initial prescriptions. Morphine alone was given at a dose of 5mg or 30 mg as the most prescribed initial dose while the combination of morphine and hydrocodone or oxycodone dose was 5mg and 5 mg combined. The least prescribed initial treatment was a combination of fentanyl and morphine at 0.4% with an initial dose of 50mcg and 30 mg respectively.

CDC guidelines also recommend that providers consult the prescription drug monitoring program (PDMP), obtain a urine drug screen (UDS) and a controlled substance agreement (CSA) if opioid therapy is initiated. Though 52.9% of providers did not prescribe opioids, 27.9% of providers that did prescribe opioids did not consult a PDMP first. Continuing with CDC recommendations, 29.6% of providers did obtain a UDS prior to opioid

prescribing while 17.5% did not obtain a UDS prior to prescribing an opioid.

Lastly, still following CDC guidelines, of the providers that wrote a prescription for an opioid, 28.7% of providers obtained a CSA prior to the prescription while 18.3% did not obtain a CSA when prescribing an opioid.

A key benefit to improving the outcome of a patient suffering from chronic pain is education that incorporates the individual's thoughts regarding pain, their expectation for pain control and any concerns they have. Of the providers that did prescribe an opioid, 33.8% of providers did not educate their patient regarding opioid therapy and the dangers of opioid therapy while 13.8% of the providers did provide the patient with education.

The clinics used in this study revealed that more than one-half of the providers were consistently following the recommended CDC guidelines, however, regional data showed that Southeast Kansas has the highest number of opioids per 100 residents at 157.858 opioids per 100 residents. Comparing other regions in Kansas to the Southeast Kansas region, Southeast Kansas has a long way to go to help curb the opioid epidemic compared to other regions in Kansas. The Kansas City Metro region and the Southwest region held the lowest rate of opioids per 100 residents. The regional data was retrieved from the Kansas Epidemiological Data Dashboard and held the most recent data from 2017 (http://www.preventoverdoseks.org/kpdo_data.htm).

Educational Policy Implications

This study reveals that pain management is challenging even for providers that specialize in pain, more so for providers in family practice or internal medicine that receive little formal education in pain management. Health outcomes for patients would benefit immensely from educated providers regarding pain and the most effective treatment available. Better provider education would not only improve outcomes but would reduce costs associated with drug related overdose and emergency room visits, patient abuse, diversion of opioids and patient satisfaction as well.

Policy Implications

The tendency for providers to overprescribe or under-prescribe medication for pain leaves providers in a quandary. With reimbursement tied to patient satisfaction, not treating a patient's pain results in a poor satisfaction score for providers, yet over-prescribing for pain leads them to open to litigation even under the best of intentions, simply due to lack of formal education.

Research clearly shows that treatment with NSAIDs, acetaminophen, ice, heat, and physical therapy are superior to treatment with opioids for acute and chronic back pain, and insurance companies should recognize this benefit and be supportive of conservative management in patients. A reduction in opioid use not only improves patient outcomes, but reduces the annual cost associated with opioid dependence and its sequelae.

Theoretical Model

Two theoretical models were used for this study and included Patricia Benner's theoretical model, From Novice to Expert (1984) and Nola Pender's (1982) Health Promotion Model. With Patricia Benner's theoretical manner, the new provider grows in practice through exploration, repetition and employment of evidence-based skills, the provider progresses from conceptual principles to perception and proficiency. Applying and developing knowledge are the result of practice that links theory to research (Moran, 2017). Utilizing knowledge, experience and evidence-based practice allows the clinician to improve the care provided to patients.

Nola J. Pender's Health Promotion Model is applicable when considering how an individual's surroundings and upbringing can influence the decisions that persons makes, how individuals achieve their dreams, and the obstacles that either hinder or entice them. Providers are role models to other people and promote healthy behaviors through education. If health disparities increase the likelihood that an individual will become addicted to prescription pain medication, then providers need to be more cognizant of how they prescribe and become better stewards of the community with an emphasis on health promotion. Promotion of health through education within the community will allow the provider crucial experiences in knowledge but offers the opportunity for them to be role models and improve the life of others before chronic illness and poor lifestyle choices take over.

Relationship Outcomes

Knowledge of the pathophysiology of pain can guide the provider into an appropriate diagnosis for the patient. However, due to the chronic and often coinciding factors, the diagnostic work-up can be challenging for even the more experienced clinician. The clinician cannot just simply perform a quick assessment and come to a diagnosis it often requires detailed history and a thorough physical exam and imaging to be done. An effective history and physical exam for a pain visit can often take more time than the allotted 20 minutes allowed for each visit. The use of validated tools to assess pain should be used at each visit (Leonardi, 2015).

While diagnosing a patient's pain can be challenging, coming up with an appropriate treatment plan can be equally as trying. The history of the pain, prior treatments, detailed medical history, the age of the client, the gender, social, cultural and psychological factors all need to be carefully considered. A detailed conversation regarding the patient's expectation for pain management should be reviewed, and the care should be focused on the patient.

Research has clearly shown that for acute and chronic pain, multiple nonpharmacological and non-opioid pharmacologic treatments were most effective especially if coupled with exercise therapy. A multi modal treatment plan ideally will allow the individual to function better enabling them to lead a healthier lifestyle which in turn improves one's quality of life.

The goal in performing a retrospective chart review of providers practices in a rural Southeast Kansas community clinic setting was to identify if providers

may be contributing to the opioid epidemic through failure to follow CDC recommendations. The CDC guidelines are intended to keep patients safe while guiding clinicians in how to prescribe opioids if necessary. Research clearly indicates that more than 50% of controlled substances are prescribed by primary care providers which is consistent with the results of this study revealing 70% of providers practiced in family medicine (Carter, 2017).

Provider demographics in this study showed the average age of the provider to be 48.5 years, a higher percent of female providers at 73.3% and the average years in practice at 12.3 years. The average age of the provider is 49.1 years (Keller, 2012). This research revealed a higher number of female providers with fewer years in practice at 12.3 years compared to prior research showing 71% of providers as male and an average of 18.5 years in practice (Keller, 2012).

Patient demographics for this research revealed the average age of the patient receiving opioids to be 48.07 years which is comparable to previous research showing 20.4% of patients between the ages of 19-40 years, 28.3% of patients between 41-65 years and 35.3% of patients over the age of 65 receiving opioids (Keller, 2012). This study revealed more females (61.2%) receiving opioid therapy compared to prior research 54.2% (Keller, 2012). Ethnicity of the patient showed 80.4% of patients receiving opioids identifying as Caucasian compared 59.9% with Keller's (2012). Demographic location could account for this difference between these numbers. Individuals with insurance also held a higher incidence of opioid use in this study with 70.4% having some form of

insurance which is consistent with prior studies showing that only 4.6% of individuals were uninsured (Keller, 2012).

Providers prescribing medications for chronic pain should feel comfortable and have adequate training in the pathophysiology of pain and the appropriate therapy to treat specific types of pain. Research shows that primary care providers do not feel as though they received sufficient education regarding pain management and are not certain of their competence when prescribing pain medications (Keller, 2012). This study shows that of the providers that answered the question about receiving education in pain management less than one quarter (23.3%) reported that they did not receive formal education and, only 3.3% did receive education in pain management.

The CDC recommended guidelines clearly indicate that non-pharmacological, non-opioid therapy should be initiated prior to initiating treatment with opioids; however, once the decision to prescribe opioids has been made, the clinician is best served by obtaining a urine drug screen, consulting with a prescription drug monitoring system, having a frank conversation regarding the potential harm of opioid therapy with the patient and obtaining a controlled substance agreement with the patient (Dowell, 2016). This study reveals that 78.3% of providers did follow CDC guidelines and did not prescribe opioid therapy. Of the clinicians that saw patients with a diagnosis of acute and/or chronic back pain, 82.1% of them prescribed non-pharmacological, non-opioid therapy to persons with acute and/or chronic back pain. Once the provider in this study decided to initiate an opioid for treatment, 28.7% obtained a controlled

substance agreement, 27.9% did not consult a prescription drug monitoring database and 29.6% did obtain a urine drug screen. Providing education to the patient regarding the hazards of opioid therapy is critical when prescribing opioids, and this study revealed that of the providers that prescribed opioids 33.8% did not provide education to the patient.

Regional data from the Kansas Epidemiological Data Dashboard clearly indicates that Southeast Kansas holds the highest number of opioid prescriptions per 100 residents compared to the other regions in Kansas. This study shows that 53.3% of providers did not prescribe opioids for the treatment of acute or chronic back pain, when an opioid was prescribed, more than 25% did not consult a prescription drug monitoring database. This is an effective tool in identifying potential opioid users, abusers and diverters and can be beneficial in guiding providers in their decision making. More than 25% of the providers in this study did obtain a controlled substance contract and/or a urine drug screen if an opioid was prescribed which is another useful tool for identifying potential opioid abusers or diverters.

Logic Model

The logic model designed for this study reveals how family practice providers may contribute to the opioid epidemic through their prescribing practices. The logic model also reveals how CDC recommendations regarding treatment of chronic pain and opioid prescribing practices among primary care providers can decrease the opioid epidemic with prescription drug monitoring programs, controlled substance agreements and urine drug screenings. Utilization

of the CDC guidelines can help providers identify potential opioid abusers and diverters enabling them to appropriately treat the patient even if that requires getting them assistance for an abuse problem. This study clearly indicates that the logic model will improve patient outcomes through safe prescribing practices among providers, increasing collaboration among providers, identifying potential abusers sooner and increasing patient knowledge regarding the dangers of long term opioid use.

Limitations

Possible limitations to this study include the limited number of clinics and time that was studied which may not lead to a representative sample of the information being sought. This study included only individuals with a diagnosis of acute or chronic low back pain however; when looking at pain, all chronic pain minus pain related to cancer could yield a difference in the outcome of the study. Including only acute and or chronic back pain for this study leaves it open for scrutiny on the reliability of regional comparison across the state of Kansas.

Medicine and treatment modalities are never stagnant, and knowledge in medicine changes rapidly. The evolving nature of medicine may interfere with new knowledge that is identified to date. Looking at regional data is an informative indicator of how one region in Kansas compares to other regions however; this study only looked at one set of clinics in Southeast Kansas, and a better representative sample would need to include different clinics across all regions across Kansas.

Recommendations for Future Research

Future research for the opioid epidemic should look at clinics from all areas in the state of Kansas and then compare that data to regional clinics which would yield a better representation of regional data. Future research could also look at providers and compare medical doctors to doctors of osteopathy to nurse practitioners and physician assistants to identify those that may be over-prescribing opioids. This data can then be looked at regionally to note differences among providers and prescribing practicing, educational training among different providers and the level of education received.

Study results reveal that providers may inadvertently be contributing to the opioid epidemic due to lack of education regarding pain management during formal education or because CDC guidelines have not been followed, leading to inability to identify potential users and diverters of opioids.

There is no question that opioids are an effective treatment for acute and or chronic back pain if conservative management fails, however; pain management becomes challenging when the nation is currently faced with an epidemic of enormous proportions due to drug use. When reimbursement is linked to patient satisfaction, and opioids can and are used for legitimate purposes, many providers are placed in a sticky situation regarding treatment modalities. Providers become afraid to prescribe thereby under-prescribing for fear of legal retribution or over-prescribing due to lack of knowledge in pain management. Primary care providers are obligated to provide patients with

appropriate care based on clinical practice guidelines however; these guidelines may not correspond with patient satisfaction.

Conclusions

Chronic pain is an extensive challenging health problem that creates enormous personal and socioeconomic costs (Peters, 2017). Unrelenting pain is associated not just with physical ailments but emotional suffering, and individuals often carry a diagnosis of depression due to chronic pain (Peters, 2017). Pain management can only be successful in persons suffering with pain if they are taught coping mechanisms allowing them to adapt to the devastating effects (Peters, 2017).

Clinical practice guidelines are recommendations for providers to improve patient outcomes by guiding their decision making for various treatments, including those involving both acute and chronic back pain. The treatment of pain either acute or chronic, is complex at best and needs to have a multidisciplinary approach, but without proper education and a lack of pain specialists, primary care providers have been forced to become pain management specialists placing them in a precarious position of treating patients for complex pain without appropriate education in treating pain. Even with appropriate training in pain management for clinicians, there are several individuals that obtain pain medications illegally which makes treating individuals with chronic pain more challenging. This also requires clinicians to be more vigilant, if clinicians are going to reduce the abuse and diversion of opioids while

appropriately treating the patient and maintaining patient satisfaction (Couto, 2009).

Additional education for primary care providers would enhance their knowledge about pain and how to appropriately manage pain, the pharmacology of opioids and addiction (Volkow, 2011). The education is imperative for primary care providers as research clearly indicate that primary care providers prescribe more opioids than other practicing providers (Volkow, 2009). Formal education in pain management should also include evidence-based recommendations regarding treatments approaches for persons with current opioid addictions and other comorbidities (Keller, 2012).

The clinical guidelines put forth by the CDC supplement other approaches such as reinforcing evidence base for deterring and treating pain, minimizing inequalities in pain management, enhancing service administration and compensation and substantiating public and professional education (Dowell, 2016).

Summary

Pain is very much individualized and subjective, and how people cope with pain is very diverse, making the treatment of noncancer related pain and specifically acute and chronic back pain acute more complex and challenging. Treatment for such pain should be a multidisciplinary approach with patient engagement and improved education provided to the patient regarding different types of pain, and the best methods for managing their pain. Most often acute and chronic pain can be safely managed through conservative means if the provider

can spend time with the patient providing much needed education. Providers need to be well-versed in the different types of pain and how to treat as well.

Lack of provider education regarding the treatment of acute and/or chronic back pain and chronic noncancer pain, lack of knowledge among lay persons regarding the pathophysiology of pain, bringing about pain as the fifth vital sign, advising people that they have the right to have their pain treated, and tying reimbursement to patient satisfaction, created an unrealistic expectation for individuals suffering from pain.

The first rule of medicine is to do no harm, and providers want what is best for their patient however; the lack of education, lack of knowledge, reimbursement, and providers wanting to keep patients satisfied have all contributed to the current epidemic we are facing through over-prescribing or under-prescribing. With unrealistic expectations for pain control, individuals began to self-treatment with opioids contributing to the misuse and abuse of opioids and the crisis facing our nation spun out of control.

Opioids have been shown to be effective; however due to the recent epidemic plaguing this nation due to misuse and abuse, providers and patients need to become better team members to combat this epidemic. Opioids will always be around as they have a place in pain management, and misuse and abuse will always occur to some extent; however, as providers it is our responsibility to our patients, their families and the communities that we live in to protect them from danger, and this includes the misuse of drugs, and as good stewards we are responsible for doing our part to combat this epidemic through improved

education of ourselves, our colleagues, education to patients and prescribing practices that follow recommended guidelines that improve the safety of our patients.

This epidemic did not begin over-night and it will not be fixed over-night but if we want to combat this rapidly growing plague facing this nation, we must begin now, and continue to be vigilant to protect our patients, families and communities that we live in. Combatting this epidemic needs to be a team effort and we need to start now.

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APPENDIX



Date: 04/05/2018

Regarding: Michele Carey
DOB: 03/14/1972

To Whom it May Concern,

Michele Carey has been an employee of Community Health Center of Southeast Kansas since October of 2015. She advised me last year that she had returned to school to complete her degree and obtain her DNP.

I spoke with Michele about her project that she is working on and she has my permission to extract the data that she needs for this. Michele will not have any identifying information from the collected data. She has advised me that she would share her findings with myself and the clinic.

Should you have any questions, please feel free to contact me at the clinic.

Sincerely,

Linda Bean
Medical Director